

Railway Age

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Another Failure of Government Operation

BY now it ought to be tolerably clear even to the most enthusiastic friends of government ownership that they are following a hearse rather than a band wagon. Not only is there no tendency toward assumption by the public of the ownership of private railways, but in countries where the railways are publicly owned there is a constant tendency toward separating them as far as possible from the rest of the government, making them into counterparts of private corporations. Germany and Austria, of course, are the classic examples of this. In these countries the railroads have been converted from organizations run primarily, it would seem, to provide sinecures for retired soldiers, into business organizations designed to operate for profit. The method used in both cases to secure this result was practically the same, i.e., divorcing the properties from government administration and placing them in the hands of a board of directors such as that directing a private corporation. Now comes Belgium, alarmed by the status of the franc, and proposes a similar change in organization for the state railways, in order to put them upon a stable economic basis and make them contribute something to the public purse. The evidence is everywhere so overwhelming that the advocate of government ownership and operation today must plainly see that he cannot avoid conviction as a friend of patronage and political manipulation, which is to say, as an enemy of the public welfare.

Railroads Need Mechanical Supervisors' Associations

THE mechanical supervisors' associations, most of which hold annual conventions this fall, perform a real function in spreading information tending to promote more efficient mechanical department, and hence railroad operation. Some of these associations, after slipping quite badly in membership and influence during 1922 and 1923 have recuperated substantially, but it may safely be said that all of them still fall short to some extent of achieving their full possibilities, owing to less than the desired attendance at conventions and interest in the proceedings. Higher railroad officers can do much to overcome this condition by themselves taking an interest in the associations and encouraging full attendance. While the convention idea has been "sold" to all branches of the American public and there are more associations in the railroad industry alone than most people would surmise, objections are heard in some quarters that the idea is being overdone. The fact that associations continue year after year and flourish, however, proves their underlying economic soundness. The total expense of the mechanical supervisory association meetings is large—the benefits are greater. The convention

programs, several of which were published in detail on pages 300 and 301 of the *Railway Age* issue of August 14, are in a number of cases notable as the best programs of the kind ever prepared. Railroad men of national reputation have been secured as speakers, and the reports evidence careful thought in selection to cover important features of the work in the various departments. Once a year is certainly not too often for a traveling engineer, a general foreman, a master painter, or other mechanical supervisory officer to get away from the details of his daily grind and catch a little inspiration for the next year's work. By meeting men on other railroads who have the same difficulties, problems and general objectives as himself he can hardly avoid picking up information and ideas which will prove of substantial benefit to his road. Encourage the mechanical supervisors to make their conventions this year a real success.

The Legitimate Field of the Bus

PRESIDENT DICE of the Reading has written an eloquent letter to the mayor of Atlantic City, N. J., outlining his road's attitude toward the heavy competition its seashore train services are meeting from independent motor buses. Train service from the nearest metropolis, Philadelphia, to Atlantic City is provided by two roads—the Pennsylvania and the Reading. It is the fastest regular train service on the North American continent. Moreover, it is frequent and the regular services are supplemented by frequent low-rate excursions. As President Dice pointed out in his letter, the prosperity of Atlantic City and the whole South Jersey coast rests largely upon the excellence of its train service. If the service were slower, to conform to average speeds of suburban trains in most parts of the country, the journey which now takes an hour would be lengthened to two hours or more, and Atlantic City would not be a possible place for residence for persons working in Philadelphia. These commuters, whom the railroads transport for 44 cents a trip, are, as President Dice says, the backbone of summer prosperity on the seashore. Naturally, they do not ride the buses. The Reading's attitude, therefore, in view of the general excellence of the train service, is not one of cavil at an obviously superior rival. It does not object to the motor bus—indeed it is planning to operate buses itself in local and feeder service—but it does object to the bus going out of its legitimate field to the injury of efficient rail service and to the consequent economic detriment of the territory the railroad serves. The situation cries aloud for the exercise of public authority, but until Congress acts on the question of interstate common carrier motor traffic relatively little can be done beyond an adequate airing of the situation and the arousing of public opinion. One or two other railroads, similarly faced with unrestrainable bus competition with entirely adequate train service on lines of heavy traffic, have them-

selves been driven to institute bus service to compete with the independent operators who threaten railroad earnings. The public, it has developed, when it insists on riding on rubber, will generally prefer the vehicles of an old established transportation company to some less well-known competitor. Railroads and highway transportation lines should not be competitors. Each has its own field and should, generally speaking, stick to it. There are some people, however, who have plenty of time on their hands who will prefer to travel by motor even over relatively long distances regardless of the effect that the provision of such service may have on railroad prosperity and that of the communities served. As an independent bus operator once naively expressed himself at a public hearing, what he sought was a chance to "make an easy dollar." Responsibility to the public—which the railroad must always consider—does not generally concern him a great deal. There is waste in duplication of facilities and President Dice is undoubtedly right in his effort to bring a solution by an appeal to the public. If this fails possibly the only solution left will be that of fighting the devil with his own fire. An awakened public opinion should make this unnecessary.

Employee Representation

"**C**OMPANY Unions Being Organized in Great Britain—Plan Imported from America Since Collapse of the General Strike." This is the heading of an article in the publication "Labor" of August 21. Apparently British industries have been attracted by the favorable reports of the results of employee representation in the United States which have been carried back to them by English industrialists, engineers, economists and others, who have recently made studies and surveys of industrial methods in this country. The article closes with the statement that the secretary of the Trades Union Congress "will welcome from American unions any special reports or other information on the wiles and failures of U. S. A. company unions encountered by them. Particularly, they are anxious to combat any accounts of 'successes' which may be advertised here by the coming U. S. A. company union propagandists." Employee representation is today being widely used on American railroads and with considerable success. Except for the Pennsylvania System, which was the first railroad to introduce employee representation, it was adopted in the mechanical departments of about 36 roads, following the shop crafts' strike in 1922. While employee representation had been used successfully by a number of industries up to that time, the railroads had had very little opportunity of studying or experimenting with it. It was therefore installed in most cases upon the basis of a few generally recognized fundamental principles, and detail methods and practices were worked out more or less on an experimental or cut-and-try basis. There were certain advantages in this, for conditions differ greatly on the railroads from those in the industries. Steady progress has been made in improving the technique, and today, almost exactly four years from the time that the first of these post-strike experiments was started, we find the employees as well as the managements enthusiastic over the results that are being obtained. Never before has there been such hearty and intelligent teamwork and co-operation. For this reason our readers will be particularly interested in a study of employee representation, the first part of which appears elsewhere in this number.

Women Who Smoke

ARE we going to have to provide accommodations in through trains for six classes of passengers? That number used to be the standard for many trains in England—first, second and third class coaches for non-smokers and first, second and third for smokers—and the cost of running so many cars, or compartments (even on light-traffic trains) was one of the stock arguments presented for the consideration of the public and the lawmakers. The question comes to mind with the announcement of the Boston & Albany that a "ladies' lounge," in which smoking will be allowed, is to be a feature of some new parlor-observation cars which are to be run on the Twentieth Century Limited between Albany and Boston. Fairness will, of course, demand an equally comfortable lounge for women who object to the smoke atmosphere. To the practical-minded manager this incident will suggest the question whether smoking is to increase or decrease. Some observers say that smoking among women is only a fad; the girls are only showing off. Are female smokers going to become so numerous as to call for separate accommodations on local coach trains? Just at present the "flapper" who wishes to smoke is suffering considerable inconvenience on long vestibuled trains, being obliged to go out and stand in the vestibule. Uniformity of accommodations all over the country, which the Pullman Company has done much to promote, is made more difficult of attainment as classes increase. The new Boston & Albany cars have a parlor in the front end, lounge in the middle and "observation" in the rear, with 16 movable chairs. In the observation end, which is for both men and women, smoking is to be forbidden. In observation cars on other roads smoking is allowed. The general passenger agent who said that observation cars were good for nothing but to make trouble and use up good money, probably has a good many friends.

The Decline of Surplus Equipment

NOT only is freight business now exceeding all previous records, but the prospects are that this will continue to be the case during the rest of the summer and throughout the fall months. Only in 1923 did the traffic handled in the first half of any year closely approach that handled in the first half of 1926. The big traffic in the first half of 1923 was largely due to shipments of coal being abnormal because of the depletion of supplies in storage resulting from the coal mine strike in 1922. These supplies had been fully restored by the middle of that year, and freight business was not relatively as large in the second half as in the first half of it.

Coal constitutes so large a part of freight business that the stocks of it on hand at any given time, and fear or lack of fear of an interruption of mining, afford one of the best indicators of future traffic. Shipments of coal were large during the first half of the present year, but a report made recently by the Bureau of Mines shows that at midsummer the accumulated stocks were rather below than above normal. The amount estimated to have been in storage on July 1 was 39 million tons. This compares with 46 million tons on July 1, 1923, 51 million tons on June 1, 1924, 38 million tons on June 1, 1925, and 43 million tons on September 1, 1925. On account of the prevailing activity in industry coal is being consumed at a rather high rate, and there

is danger of trouble in the union mines next spring when present wage contracts will expire. There seems reason, therefore, for believing that shipments of coal during the rest of the year will be substantially larger than in the latter half of 1923 and at least as large as in the latter half of either 1924 or 1925. Business in general is good, and therefore total car loadings this fall bid fair to exceed those of last fall and to reach the highest peak ever attained.

With present and prospective traffic so large it becomes worth while to consider the equipment situation of the railways. The latest date for which locomotive statistics are available is August 1. On that date the railways had 62,682 locomotives. The total number has been declining ever since the fall of 1921 when it was 64,851, but the average tractive power has, of course, been increasing.

The number of locomotives that were in serviceable condition on August 1, 1925, was 53,263, while on the same date in 1926 it was 53,964. The number stored in good condition on August 1, 1925, was 6,313, while on the same date in 1926 it was 5,683. The number in bad order must also be considered in determining the reserve supply. On August 1, 1925, it was 10,658 and on the same date in 1926 only 8,718. The combined number stored and in bad order on August 1 last year therefore was 16,971, and at the same time this year there are only 14,401, a decline in total reserve supply of 2,570.

Information is available regarding freight car conditions up to August 7. On that date in 1925 the number of surplus freight cars in good repair was 238,468, while on the corresponding date of this year it was 179,771, a decline of 58,697. The number of cars in need of repair on August 1, 1925, was 197,281, while on the corresponding date this year it was 165,756, a decline of 31,525. If the declines in surplus cars and in bad order cars be added together, it is found that the decline in the total reserve supply was 89,222.

Locomotives and cars are alike in the respect that nobody ever knows how many of them are being carried on the books of the railway companies that are actually in such condition that they could not be so repaired as to make them of practical use. Between August 1 and the middle of November last year the number of locomotives stored in good condition declined 2,031. If there should be an equal decline during the same period this year, the number of locomotives stored in good condition at the middle of November would be 3,652, or the smallest it has been on any date since December 1, 1923.

Between August 7 and November 7 last year the number of surplus cars in good condition declined from 238,474 to 103,694. If there should be an equal decline this year the number of surplus cars in the first week of November would be only 45,000, the smallest figure reached since June 14, 1923.

Of course, traffic may not increase as much during the latter half of this year as it did during the latter half of last year. Weather that will hamper railway operation may not come as early. On the other hand, it may be that we have entered a period of growing freight business such as those before the war. Developments that are occurring give some support to this view. It is evident that if this should be the case the large surpluses of equipment that have existed for almost three years would be greatly reduced, and that there would have to be increases in the purchases of locomotives and cars to enable the railways to maintain the good freight service they recently have been and still are continuing to render to the public.

The Wages of Railway Labor and Railway Capital

BOTH the labor employed by the railways and the capital invested in them are indispensable to the rendering of railway service. The wages of the employees are much higher in proportion to the purchasing power of the American dollar than they were before the war. In other words, the employees have secured a large advance in their "real wages." The wages of railway capital are much smaller in proportion to the purchasing power of the dollar than they were before the war. Both employees and capital are dissatisfied with the incomes they are receiving. The employees are trying to get an advance in their wages. The western railways have been trying to get advances in their rates, and all the railways of the country are trying to increase the wages received by the capital invested in them by handling more traffic and operating more economically.

While the railway labor leaders are trying to get a general advance in wages, they are also engaged in magnifying the "profits" the railways are earning, and especially the "profits" the railways are trying to get. They always proceed on the assumption that if railway net operating income is allowed to increase the effect will be to keep wages down—an assumption which the entire history of the railroad industry disproves, but which the labor leaders, with their fondness for arguing from false premises, always start with. Their favorite method of trying to poison the minds of the employees against the railways at present is that of enormously exaggerating the valuation the railways are trying to get placed upon their properties and the net return that would be derived from it.

A classic example of this kind of exaggeration is afforded by an editorial entitled "Boosting the Wages of Railroad Capital," which was published in "Labor" for August 21. This is a weekly paper edited in Washington under the supervision of a committee appointed by the Associated Railroad Labor Unions. Monstrous as is the exaggeration in its editorial, it is an amusing coincidence that if the wages of railroad capital should be "boosted" as much as "Labor" says efforts are being made to boost them, they would be "boosted" no more in proportion than the wages of employees actually have been "boosted" since 1916.

"Labor" says the Wall Street Journal has asserted the railroads of the United States are worth \$50,000,000,000. It then proceeds as follows:

"Six per cent on 50 billions is three billion dollars. This year the roads' profits will break all records, but will probably not exceed \$1,200,000,000. The Wall Street Journal is therefore paving the way for an increase of \$1,800,000,000 a year in the wages of railroad capital. The Journal would find it difficult to prove that one-fourth of 50 billion dollars has been honestly and economically expended on the roads. So this organ of Wall street is proposing that the people of the United States shall pay dividends of six, seven or eight per cent on four times as many dollars as the owners have put into the roads."

Whatever anybody else may have said, nobody connected with the railroads ever has advanced any claims which if accepted by the Interstate Commerce Commission and the courts would result in a valuation remotely approaching the enormous sum upon which "Labor" bases its reasoning. Besides, the Interstate Commerce Commission has held a fair return for the railways would be only $5\frac{3}{4}$ per cent annually. Finally, it is simply silly to say the number of dollars that has been "honestly and economically expended" on the rail-

ways is not more than one-fourth of 50 billion dollars. But since "Labor" talks of "boosting the wages of railroad capital," it is interesting to compare the "boost" that actually has occurred in railway wages with the "boost" it asserts is being sought in the wages of railway capital.

The aggregate wages of railway employees in 1925 were much greater than in 1916. The number of hours they worked to get them was much less. The total hours worked by railway employees in 1916 were 5,189,790,716, and in 1925 only 4,537,462,705. It was owing to the large investment of capital made in railway properties meantime that it was possible to handle a much larger traffic in the latter year than in the former and at the same time so greatly reduce the number of hours of labor paid for. The average hourly wage of employees in 1916 was 28.3 cents and in 1925, 63.9 cents, an increase of 126 per cent. The increase in the average annual compensation per employee was less, but this was because the average employee worked fewer hours in 1925 than in 1916.

There was no reduction meantime in the hours worked by the capital invested in the railways. In both 1916 and 1925 each dollar of it worked every hour in the year. In 1916 the net operating income earned upon each dollar of property investment was 5.9 cents, while in 1925 it was only 4.86 cents. Now, suppose the wages of capital had been increased instead of reduced and that the increase had been 126 per cent, or equivalent to the increase in the wages received by the average employee for each hour he worked. In that case the wages received by each dollar of capital in 1925 would have been 13.33 cents. The property investment reported by the railways last year was \$23,070,000,000. A return of 13.33 per cent upon each dollar of this investment would have been \$3,075,000,000.

Curiously enough, therefore, if the wages of railroad capital had been "boosted" as much in proportion as the wages of railway labor, the total return received by railroad capital last year would have been even greater than the amount the thought of which throws the weekly organ of the railway labor leaders into spasms of indignation!

The *Railway Age* does not take the view that the valuation placed upon the railways should be any sum remotely approaching 50 billion dollars. It does not even believe they should be given the much smaller valuation that would result from basing it entirely on the cost of reproduction, although it believes that both the law of the land and sound principles of economics require that much weight shall be given to the increase in the cost of reproduction that has resulted from important economic developments, and especially from the decline in the purchasing power of money. But what idea of consistency have labor leaders who demand and secure advances in wages far in excess of the decline in the purchasing power of the dollar, who are demanding still further advances in them, and who at the same time put forth their utmost efforts to prevent railway capital from getting even as much net return upon each dollar of investment, regardless of the decline in the purchasing power of money, as was earned before the war. There was a lot of talk about "fair co-operation" between the labor unions and the railways before the Watson-Parker Railway Labor Act was passed. What kind of "co-operation" are the labor leaders giving when they constantly cause their weekly organ to try to poison the minds of employees against the railways by publishing the grossest misrepresentations of what the railways are doing and trying to do?

Both railway labor and railway capital must be fairly

and adequately paid if the railways are to be able to serve the public well. The malicious buncombe that is constantly published in several organs of railway labor unions indicates that the labor leaders responsible for it have no regard whatever for the legal rights or economic needs of the railways or for the effect that would be produced upon the public welfare if the railways should be permanently so regulated as to disable them under private ownership from raising adequate capital. It suggests that they are as strong as ever for their Plumb plan of government ownership, but believe the best means for promoting it is not that of directly advocating it, but that of spreading propaganda to poison the minds of employees against the railways and to create a public sentiment that would cause a restriction in the net return earned which finally would break down private ownership.

When Traffic Influences the Purchase of Concrete Materials

ATTENTION has been directed in these columns to the influence of traffic considerations in the purchase of materials and equipment by the railroads, and judging from the comments of our readers this pressure is being imposed from a wide variety of angles, to the embarrassment of the officers in the using departments. It is their contention that the selection of materials upon considerations other than quality or fitness, tempered by due regard to price, may easily result in the purchase of materials which will not give service commensurate with the outlay for them.

A more far reaching effect is to be observed in the case of sands, gravels and stones used as aggregates in the making of concrete. The use of improper materials in this work not only militates against the securing of a good quality of concrete, but imposes a serious obstacle in the way of the current movement for a greater refinement of methods designed to insure a higher measure of permanence and a uniformly greater strength that will justify higher designing stresses and, therefore, greater economy.

During the past three years railway engineers have evidenced an increasing interest in the more scientific methods of making concrete which not only demand the use of clean aggregates, but also require a more careful grading of the particles of sand and pebbles for the purpose of developing proportions which will give the desired strength. If, however, the quality of the aggregates used is low or varies with each carload delivered, the problem of securing concrete of a uniform strength becomes an exceedingly difficult one, and some railway engineers have despaired of effecting any marked improvement in their practices because of the difficulty imposed on them in securing suitable materials.

Most of the sand, gravel and stone produced in the pits and quarries tributary to any railroad is used in large quantities for many purposes other than the making of concrete for railway structures. The material companies are, therefore, large shippers. Moreover, many of their non-railroad customers are not at all particular as to the quality of the materials they purchase. For this reason, objections of a railway engineer to the purchase of material from a particular pit or the rejection of several carloads by an inspector gives rise to complaints that receive prompt attention, and the railway engineer is under the burden of explaining

why his requirements are more severe than those of the other users of materials from the same pit or quarry.

The answer is that many concrete builders fail to recognize the essential requirements for the making of a concrete insuring a degree of permanence upon which the decision to use this material of construction has been based. It is not the idea of the railway engineer that there are many dealers whose materials must be rejected because of inherent unfitness founded on impurities or unsoundness. Rather it is the failure of the producers to take the pains necessary to supply a product of uniform quality meeting the requirements imposed by the specifications. The question is not, therefore, one of opposing the purchase of material from a particular dealer (who happens also to be a large shipper), but of demanding conformity with the specifications regardless of the source, and since these demands are made solely in the interest of the enormous investments which railways are making in so-called permanent structures, it cannot be considered an unreasonable one.

Unfair Attacks Made on California Grape Plan

AN article which appeared in a recent issue of the Chicago Produce News, the New York Produce News and the Los Angeles Produce News, attacks the plan formulated by the Car Service division of the American Railway Association for handling the California grape crop without the author of the article apparently knowing the conditions that led to the adoption of the plan. The plan in question was submitted by the Car Service division of the American Railway Association upon the request of the grape committee of the Pacific Coast Transportation Advisory Board with the hope that it would result in a better distribution of the products of this industry and promote its future stability, and was accepted by a special committee of the board appointed by growers, shippers and bankers.

Although the attack on this plan charges that the carriers have adopted a program which they believe will insure the collection of freight charges and particularly will relieve them from damage suits where they fail to supply cars, the plan is in reality designed for the benefit of the shippers and growers themselves. In spite of the fact that 10,000 carloads of grapes were left on the vines last year, prices were forced down to as low as \$50 for a whole carload delivered. Shipments of 1,500 to 1,600 cars a day were made, the bulk of which were of poor quality, and as a result millions of dollars were lost by the growers and shippers. The California grape movement, with more acreage in bearing this year than last, creates a serious problem and requires drastic changes in methods which will eliminate grapes of poor quality, control the movement of cars, insure the railroads getting their freight charges, the shipper his commission and the grower his profits.

There was only a relatively small number of individual shippers of grapes from California in 1918 and 1919, while it is estimated that the 1925 crop was marketed through approximately 800 individuals, generally unrelated as to their activities and consisting of individual growers, well established shipping firms of long standing, eastern speculators and buyers, and direct representatives of receivers. There was no control whatever over the distribution of the product in eastern markets. Railway equipment was grossly misused, terminals and markets glutted, and car orders greatly inflated at shipping points, all of which factors, plus

the shipment of a greater volume than the markets could readily absorb, contributed to a depression in returns to the growers.

The potential increase in the production of grapes emphasizes the gravity of the economic aspect of the entire problem. The most reliable estimates indicate that within five years California will produce the equivalent of 210,000 carloads and, allowing for a reasonable increase in the consumption as raisins, at least 135,000 carloads will call for transportation in refrigerator cars. The experience of shippers and growers during the past two years may best indicate what may be expected in the future.

While there has been a substantial increase in the production of citrus fruits and vegetables in California, the tremendous increase in deciduous fruits has, in the main, accounted for the very large increase in the capital account for cars and facilities of the originating carriers. The 1926 program alone calls for the building of 6,000 additional cars at a cost of approximately \$20,000,000 with an approximate annual interest charge of \$1,000,000. In addition to the cars owned by the Fruit Growers' Express and the Atchison, Topeka & Santa Fe, which totaled 51,308 cars in 1925, it was necessary to augment their supply by the delivery to them of every available refrigerator car of private line and foreign railroad ownership. This was done primarily to meet the demand for the movement of grapes to eastern markets. To secure the use of such foreign cars it is necessary to make advance arrangements currently, especially as the movement of grapes during the months of September, October and November coincides with the peak movement of all other perishables.

Of outstanding importance in meeting car demands for fresh grapes is a current accurate knowledge of the shipments of them to be offered. The approximate total production of all varieties is a known quantity, but the percentage of the so-called "raisin grape" that will find its market in the fresh state has not heretofore been known until the season is well advanced (about September 21), and no notice is given to the carriers in their effort to meet this demand. In 1924 the carriers anticipated a large shipment of raisin grapes in the fresh state, which did not materialize. Refrigerator cars were hauled empty from Chicago and points east to meet this demand which did not develop. No current and periodical advance notice was given upon which to predicate a definite program in this regard. On the contrary in 1925, the deciduous committee reduced its May estimate of 75,000 cars to a possible 60,000 cars. Later, after this estimate was made and without notice, growers turned approximately 19,000 cars of muscats into the fresh market. Cars, which must be hauled empty an average distance of 2,400 miles, could not be mobilized to meet such a sudden demand.

Unlike other commodities, little is known concerning the potential consuming ability of the juice grape market. Shipments were forwarded in 1925 for which no profitable market was found. The great number of individual shippers, many of whom have never been heard of before, plus the lack of accurate marketing knowledge, creates an element of great uncertainty as to the stability of this class of traffic, especially as related to the reliability of the shipper, the use of equipment and its prompt release at destination, and the return upon the tremendous capital investments of the carriers, with corresponding uncertainty as to the returns to the grower, shipper and banker.

Under the plan approved by the committees there was to be established on August 1, 1926, a judicial body for the administration of the car plan with headquarters at San Francisco. This administration will

be under the supervision of the American Railway Association, which will act for all California railroads. The Pacific Coast Transportation Advisory Board and its grape committee will act as advisory council. For the purpose of carrying out the plan the state has been divided into eight shipping districts, each with appropriate headquarters and comprising all shipping stations located within each district.

Each shipper of grapes from stations in California is directed to file with each carrier from which he expects to order cars a notice in writing ten days in advance of each weekly period, specifying the approximate number of refrigerator cars to be loaded by him with grapes at each of such carriers' stations during this weekly period. Such notice, supported, when required, by satisfactory evidence that the shipper has loading for such a number of cars, must be filed with the joint carrier representative at the headquarters of the district for all stations in this district. Cars will be furnished on car orders notwithstanding the failure to furnish advance notice of approximate car requirements, when the cars can be furnished without impairing the carriers' ability on that day to furnish cars ordered by shippers who have filed advance notices of requirements. To place all shippers on the same basis with reference to the class of surety for bonds covering grape shippers now provided for by tariff, all shippers are also asked to furnish bonds issued by a reputable surety or guarantee company authorized to conduct its business within the state of California, the amount of the bond required to be, as heretofore, determined by the carriers.

A Significant Development

THE delivery to the Great Northern of seventeen locomotive tenders with water capacities of 21,500 gal., which is now in progress, is of more than passing interest from several standpoints. While purchased to meet the local requirements of an individual road, these tenders reflect a trend that affects operating, mechanical and engineering departments alike and show the close co-ordination necessary between these departments in their respective efforts to reduce transportation costs.

These tenders illustrate the rapidity with which the water capacity has been increased in recent years to meet operating necessities. This increase is shown by the fact that the water capacity of the largest tender illustrated in the 1906 edition of the Locomotive Dictionary was 7,500 gal., while most of those illustrated carried from 5,000 to 6,000 gal. In a later edition of the same dictionary published ten years later, the average capacity of the tenders illustrated had risen to 7,000 gal., while the maximum was 12,000. Today tenders of 12,000 gal. capacity are common and those of 15,000 gal. capacity are in general use on several roads, while the tenders now being delivered to the Great Northern exceed in water carrying capacity the maximum of ten years ago by 75 per cent.

The conditions creating the demand for larger tenders are two-fold. The constantly increasing train load, both passenger and freight, increases the amount of water required per mile operated. With the distance between water stops fixed by the location of water stations, it is necessary to provide larger storage to carry a train from one regular stop to another. A second and more important consideration is the growing realization on the part of transportation officers of the loss that results from unnecessary train stops, and increasing pressure is being placed on train crews to reduce the

number of these stops to the minimum. This was evidenced most strikingly by the test run made by the Missouri Pacific three months ago, whereby a freight train of 2,455 tons was operated from Kansas City, Mo., to Jefferson City, a distance of 162 miles, without a stop, this being made possible by the hauling of an auxiliary tank carrying 10,000 gal. of water. The Great Northern has the same objective in mind in the use of large tanks.

But these more exacting requirements of the transportation department are not being directed solely at the designers of locomotive tenders. They are also forcing the engineering department to give more attention to the character and location of its water supplies and to the equipment provided to pump and deliver this water with the minimum delay to trains. For the time being, at least, the larger tenders are giving the locomotives a greater "cruising radius" and permitting them to "run" certain stations. Taking advantage of this condition, the operating and engineer officers of one road have made a complete survey of their water facilities and have developed a program for their reconstruction from the standpoint of present and probable future operating requirements. In the development of this program certain stations of ample supply have been selected for stops by all trains and storage and delivery facilities are being provided accordingly, while others with less favorable supplies and location will be retained with their existing equipment for the present for secondary service for certain trains and still others which are deficient in quality or quantity will be abandoned.

An adequate supply of water is essential to the operation of steam locomotives. By making this water available for locomotive use in a way that will most greatly facilitate the movement of trains, engineering and mechanical department officers can do much to expedite the movement of trains by eliminating unnecessary delays and thereby increase the capacity of the lines by reducing track occupancy and at the same time lower the cost of transportation.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian,
Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

The Dining Car Service of a Great Railroad. Pennsylvania Railroad Company's Information, August 2, 1926, describing details of the service that provided an average of 10,700 meals a day in 1925. 16 p. Pub. by Pennsylvania Railroad Co., Philadelphia. Apply.

Unit Costs of Railroad Service, 1915-1925, by Bureau of Statistics, U.S. Interstate Commerce Commission. "This statement brings down to 1925 certain of the tables in Statement No. 24351, issued in December, 1924, and entitled 'Unit Costs of Railroad Service, 1915-1923.'" Statement No. 26169. 15 p. Issued by the Interstate Commerce Commission, Washington, D. C.

Periodical Articles

Magnetic Control for Speeders. Description of a signaling device for installation at grade crossings, Literary Digest, August 7, 1926, p. 23.

Oregon Must Condense Products and Dispel Provincialism, by Clyde B. Aitchison. On marketing and transportation problems. Oregon Voter, August 14, 1926, p. 27-33.

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Does Decay Injure Ties?

An examination of conditions under which many ties are seasoned indicates lack of realization of risk incurred

By Elmer T. Howson,
Western Editor, *Railway Age*, Chicago

ARE the railways interested in the quality of the ties furnished them? Is it of concern to them that the ties are well made and properly graded? Should they show any interest in the place and the manner of their seasoning? In other words, is a tie merely a tie or do they differ in quality and in value with the manner of their handling? These questions may not seem worthy of serious consideration, yet only the most casual investigation of the manner in which



Many Ties Are Permitted to Season for Months Among the Weeds

millions of ties are still being bought will show that this is a matter of the liveliest concern to the railways.

At the present time the roads are spending more than \$200,000,000 annually for approximately 100,000,000 cross ties for insertion in their tracks, including the cost of timber, treatment, transportation and insertion. This is a larger amount than is spent for any other single class of material used in maintenance of way work. It constitutes a tax of \$500 on every mile of track maintained, and as time goes on these costs per installed tie



Ties Stored in the Mud Decay Rapidly

are steadily increasing. Furthermore, the service demanded of these ties is steadily becoming more severe. Wheel loads are heavier, traffic more dense and standards of track maintenance more exacting. At the same time the diminishing stands of timber are making it necessary to utilize less resistant woods. To insure that the ties will meet the requirements of service adequately, specifications have been prepared by the American Railway

Engineering Association and approved by the American Railway Association, setting forth the minimum requirements. These specifications, the first introduced in 1918, have met with increasing favor from year to year until they are now in force on a majority of the roads and may be said to be the standard cross tie specifications of the country. These specifications fix the dimensions of the ties acceptable for the different grades or "sizes." They set forth the requirements of manufacture and they limit the amount of decay permissible.

A uniform specification, however, is not enough; to be effective it must be enforced, for no specification is better than the inspection that accompanies it. It is here that the widest discrepancy arises and the most serious shortcomings are found, for on many roads which are in theory buying ties in accordance with the A. R. E. A. specifications the inspection deviates so far from the specifications as to constitute practical nullification of them. It is through laxity and irregularity in inspection



Ties Well Made and Accurately Graded, Permitted to Season on the Right-of-Way Under Adverse Conditions

also that demoralization in the tie producing industry is created, to the ultimate loss of the railways, which constitute practically the only outlet for cross ties.

The most pronounced deficiencies in inspection are found in the over-grading of ties and in the disregard of evidences of decay. There is little justification for either if inspectors are employed of the experience that the importance of their work warrants. As to over-grading, the specifications are definite in fixing the dimensions for each grade or "size," yet over-grading is so prevalent in certain tie producing areas and so much more pronounced among the inspectors of some roads than of others that it is evident that it reflects the policy of those roads rather than the shortcomings of individual inspectors.

In an investigation made by the writer in some of the largest tie producing areas of the country three years ago, over-grading was found to be common in ties in-

spected for many roads as was set forth in an article in the *Railway Age* of July 14, 1923. In a similar investigation in the same territories made during the last few weeks the same conditions were noticed, although less pronounced. On some roads whose inspections showed considerable deviation from specifications three years ago, little was found to criticize as to grading this year, the inspection showing a marked improvement. In other cases similar but less marked improvement was noted, with opportunities still remaining for considerable further progress. In still other cases no change was



Close Piling Permits Decay

found, the inspection still being characterized by flagrant deviations from specifications. When it is realized that over-grading of a tie by one "size" increases its price ten cents or more the loss to a railroad from willful over-grading, which not infrequently averages two grades or more, can be seen.

Decay a Serious Factor

Since decay is the greatest enemy of ties and since by far the majority of the ties removed from track come out because of decay, it would appear self-evident that the strictest scrutiny should be given ties to detect and eliminate those showing indications of decay. Yet in many instances ties are accepted readily with a "little" decay, even though it is known that this will spread rapidly throughout the tie and even to other ties during the seasoning period. In many instances the protection afforded by the specifications in the ban against decay (requiring that "all ties shall be free from any defects that may impair their strength or durability as cross ties such as decay," etc.) is discarded on the plea that the ties, having been cut, should be accepted as a conservation measure to prevent the timber from being wasted. This argument ignored the fact that just as long as ties are accepted with decay evident others in this condition will be produced and offered for sale. In other words, the acceptance of a few decayed ties merely encourages the production and delivery of others.

If it were possible to determine the number of ties whose service life is reduced through decay prior to their insertion in track, and to measure this reduction in the life in tie years, the figure would be so startling and the drain on railway revenues would be seen to be so large that no further argument for strict enforcement of the specifications would be necessary. But even in the absence of definite data the subject warrants careful consideration because of the drain that is continuing from year to year.

While certain species of decay originate in the tree before it is felled, by far the larger loss arises from faulty handling of the timber during the period of seasoning. This is due in large measure to a lack of appreciation of the rapidity with which timber deteriorates under adverse conditions. It is due also largely to the indifference of many of the railways to evidences of

decay when inspecting ties incident to their purchase. It is equally evident in the carelessness with which they permit their ties to season after they have accepted and paid for them.

It is commonly recognized that moisture and vegetation, which are prevalent in the forest, are highly conducive to decay, while sunlight and air are essential to proper seasoning. For this reason, those roads and those commercial treating companies which are giving the closest attention to the care of their timber provide seasoning yards adjacent to their treating plants which are carefully graded to provide thorough drainage and kept free from all vegetation by constant weeding. It is the further practice of these organizations to remove their ties from the woods to these yards at the earliest possible moment before they become infected with decay-producing organisms. No road has studied the behavior of its ties more thoroughly than the Santa Fe. As a result, no road is more exacting in its insistence that its ties be removed from the woods to the seasoning yards promptly. One commercial company which has also given this subject the most careful attention endeavors to bring most of its ties out of the woods within two weeks of the time of their cutting and all within a month.

This transfer involves an extra handling and adds perhaps three to five cents to the cost of a tie. To avoid this expense not a few roads and commercial treating companies are allowing their ties to be stacked on the right of way for the period of six months to a year required for seasoning, with vegetation growing up through the piles and exposing them to decay.

To make matters still worse, little or no attention is paid to drainage, and in many instances ties are being piled on land subject to overflow, another condition conducive to early and rapid decay. A further consideration of no small importance is the fact that with centralized storage it is possible to keep a close check on the rate of seasoning of various lots of ties by means of moisture determinations and to load them on trams for treatment as soon as they are ready, while it is not practical to so watch ties on the line, and they are commonly loaded according to arbitrary rules or to the convenience of



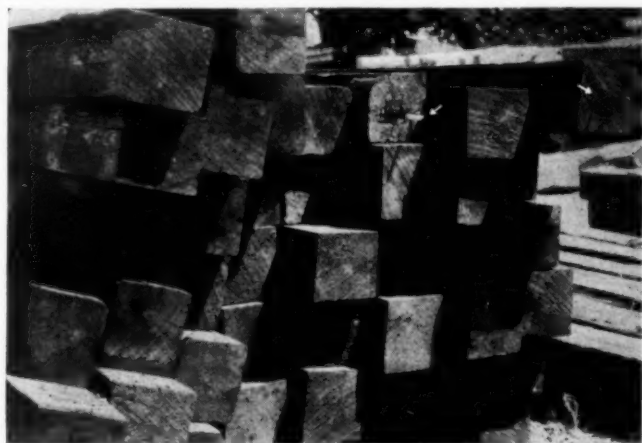
The Bottom Three Rows of Piles in These Ties Are Submerged in Every Freshet

local officers. It is not infrequent for the proper seasoning period to be disregarded entirely with ties of commercial companies and for the time of loading to be governed by the receipt of orders, which condition frequently results in ties being left on the ground long after they have been seasoned adequately, particularly in times of tie surplus or limited demand.

A further precaution insisted on by the more careful roads requires that, as stipulated in the specifications, the ties be "stacked in alternate layers of two and seven, the bottom layer to consist of two ties left at least six inches

above the ground." Such stacking permits the air to circulate freely about the ties while they are piled awaiting shipment to the central seasoning yard. Yet many ties are stacked closely together in ricks and are accepted when so stacked, even though it is recognized that this practice not only makes accurate inspection and grading impossible, but is highly conducive to decay. This practice is tolerated merely because the woodsmen find it easier to unload them this way than to stack them more carefully in regular piles.

Is this care worth while? It costs money to secure and grade a central storage yard. It costs money for the extra handling necessary to transfer ties from the right of way to the storage yard. It also costs money to pile the ties openly when they are delivered on the right of way. All of these costs may aggregate as much as ten cents per tie. It should be considered, however, that it costs as much to treat, transport and install a defective tie as a perfect one, while the service life is materially shortened. The added care in handling the tie to protect it properly against decay may increase its cost in the track five per cent while neglect of these provisions may reduce its life in the track by 25 or even 50 per cent. It does not require much of an analysis to show that only a relatively small shortening of life is required to offset the increase in the cost of handling. That expos-



The Result of Improper Seasoning—Decayed Ties

ure on the right of way results in such loss of life is self evident. Much stress is placed today on the necessity for the conservation of our timber resources. This is advanced as an argument for the use of ties that do not comply with the specifications. It is a far stronger argument for the adoption of those measures that will prevent the deterioration of timber cut for ties and secure from this timber the maximum life in track, thereby postponing as long as possible the necessity of cutting other timber to replace it. True conservation strikes at the elimination of every unnecessary loss in timber.

What is the reason that carelessness is tolerated in the seasoning of timber? As far as the railways are concerned, it is due in large measure to a mistaken idea of economy, fostered by a lack of realization of the danger incurred by exposure. With ties in the hands of commercial companies the same condition exists to some extent, supplemented by the very natural reaction that in the pressure of competition these companies are not inclined to adopt more exacting precautions than are required by their patrons.

That many ties are being shipped to treating plants and treated in which decay is far advanced can be seen from an inspection of operations in any of the tie pro-

ducing areas. A partial explanation of this is afforded by the laconic statement of a representative of a commercial company supervising the loading of some of these ties that "you can't tell it when they're treated." When such ties continue to be shipped in quantity month after month it is evident that "somebody is getting them" and that they are going into tracks where they will require renewal prematurely. Such a condition is an indictment of the conditions under which the railways buy materials. As such it constitutes a challenge to engineering officers who use the ties and to whose accounts they are charged and to purchasing officers who formulate the inspection policy and whose representatives accept the ties.

No Consolidations Likely Without Including the Short Lines

By F. J. Lisman

F. J. Lisman & Co., New York

RAILROAD consolidation must proceed, but it can do so only in accordance with the intent of Congress. It was, and still is, the intent of Congress that the railways of the country should be consolidated into a limited number of systems in order to afford all the people reasonably equal and adequate transportation facilities. Congress had particularly in mind the fact that many of the short lines were not giving adequate facilities.

It has been found impossible, for legal reasons as well as on account of much local opposition, to carry out the mandate of Congress under which the Interstate Commerce Commission was to allocate all railways into about 20 systems; therefore the compulsory feature of the Transportation Act of 1920 has, by the silent consent of all parties concerned, dropped into desuetude. Congress has shown every indication of being willing to drop this feature of the Act, but thus far has not been able to agree on the necessary substitute which was intended to accelerate voluntary consolidation.

Short Lines Not Provided For

Voluntary consolidation has been proceeding, but not quite along the lines intended by Congress, because a number of important lines have been willing to take over such other roads as suited them, but in most cases have not included those short lines which naturally would form a part of their system. This action has been due to fear that these short lines might not be profitable, because of the higher cost of operations with trunk line standard wages, improved service, etc. The commission fully realizes that this method of consolidation is contrary to the intent of Congress and it was so declared in the majority opinion in the Nickel Plate consolidation case. The question of the absorption of short lines will come strongly to the fore in the applications for consolidation now pending before the commission.

The important cases pending besides the Nickel Plate "mess" are those of the New York Central and the new Loree Southwestern System, which latter is to include three important railroad companies but as far as is now known, does not provide for the acquisition of any weak lines. If the commission complies with the intent of Congress it will not grant requests for consolidation unless the short lines tributary to the larger systems are taken over. If the Loree application were granted as it stands, the Southwestern Railroad System would become stratified. There would be nothing left

in the states of Louisiana, Arkansas, Oklahoma and Texas but the Southern Pacific, Santa Fe, the Frisco-Rock Island combination, the Missouri Pacific System and the Loree combination and—a lot of short lines. Similarly, in the territory between New York and Chicago, if the proposed New York Central and the Greater Nickel Plate consolidations were permitted as requested, there would be a lot of unallotted short lines left over, giving, in many cases, inadequate service.

I. C. C. Embarrassed

In all mergers the interests of three parties must be properly guarded. Those of the public, those of the buyer of the property and those of the seller of the property. The Interstate Commerce Commission has the last word. The commission does not like the idea of having to arbitrate these very complicated problems; however, in the end, it will have to arbitrate the fair value of the short lines, in spite of its objections, as it has to fix, and in effect, arbitrate rates whenever there is a rate dispute.

The short lines may be divided into three classes:

- 1—Those which barely earn, or even earn less than operating expenses.
- 2—Those which earn more than operating expenses but not a full standard return.
- 3—Those which pay well and the owners of which do not care to sell.

The first class is comparatively easily dealt with; insofar as a short line is reasonably necessary to the adjacent communities, it must be maintained; a fair price for a non-paying road is its scrap value. A given short line might be 100 miles long and in the public interest it might be necessary to maintain service for its entire length, or it might be desirable to maintain service on only ten miles and to abandon the remaining ninety miles. The commission has full power in cases of this kind and has repeatedly exercised this power by authorizing abandonment.

The second class which earn more than operating expenses are the big problem. Congress intended to strengthen these lines under the 1920 Transportation Act by authorizing the commission to fix the division of joint rates, fares and charges (Section 15, Paragraph 7) in order to enable the short lines to live and adequately serve the public. This was not intended to mean that the short lines should necessarily get a full standard return; this in each case depending on the necessity of the road to the public. The clause concerning the short lines which was written into the 1920 Transportation Act was drawn by officials of The American Short Line Railroad Association. The only change was made in the last four lines by the omission of the word "adequate."

It developed at committee hearings that the power to fix rates was equivalent to the power to fix values, and Congress intended thereby to give the commission power to fix the value of these short lines and thus gently but firmly induce the trunk lines to give serious consideration to the acquisition of these properties. Some few of the short lines of this class have been acquired, but this process has not moved along rapidly due to the fact that some owners of short lines have acquired an exaggerated idea of the value of their properties. In some cases undoubtedly the managers of the short lines have rather discouraged any steps toward consolidation for fear of losing their jobs; in other cases there is a very honest difference of opinion on both sides? This problem must be solved, much as the overworked commission would undoubtedly like to avoid it.

I. C. C. Will Be Forced to Take Action

In the forthcoming consolidation cases the commission is bound to ask the applicants what steps have been taken to acquire the tributary short lines. The likely reply is that no steps have been taken; or that the short line people have asked an excessive price for their property; or refused a bid which the trunk line officials considered liberal. In any case, it is undoubtedly the duty of the commission to use its best endeavors to bring the parties together. The commission can appoint one of its examiners to mediate. If a company is not willing to accept the suggestion of a mediator, it will develop by the inexorable logic of events that the commission must order the case brought before it for the purpose of either determining the value of the short line for consolidations; or for the purpose of giving it a division of the through rate which will enable the short line to not only properly sustain itself but to improve its credit so that it give service equal to that of a trunk line. Prorating earnings from passenger business, other than on a straight mileage basis, will shortly be brought to the commission.

The short line people are not the only ones who are guilty of selfishness and short sightedness. The trunk lines which in many cases have developed from short lines and which have themselves many unprofitable branch lines, seem to look upon all short lines as more or less stationary or hopeless, when as a matter of fact, the acquisition of a new short line with improvement in service, in many cases, will tend to develop new traffic. In several instances the saving in overhead will much more than make up for the increased wages which it may be necessary to pay. The saving in operating expenses, due to the superior credit and better purchasing and shop facilities of the strong lines will in most cases overcome the cost of better service which it might be necessary to render.

May Lead to Agreement

After the commission once really takes hold of this problem it will gradually be greatly simplified, because in many cases such action will lead to voluntary agreements by the parties interested. Anyway, the commission is bound to acquire the habit of more or less fixing values, the same as it has acquired the habit of fixing rates, which in effect is the same thing.

Any shipper on a short line is entitled to the benefits of the law and if the owners or representatives of the short line on which he happens to be located fail to attend the hearings for consolidation (possibly because they are in fear of being consolidated out of a job) the commission cannot reasonably penalize the shipper by forever practically foreclosing his right to adequate railroad service. It will therefore develop at consolidation hearings that all short lines must be cited in order to show cause why shippers on their lines should not get the best possible service and if not, why each particular road should not be included in consolidation plans.

The class of short lines which the owners do not want to sell, cannot, of course, be constituted as a preferred type. They also will have to be dealt with on their merits and if they are earning more than a reasonable return, the commission may, and probably will, use its power to reduce their divisions.

The above is merely an outline of a very difficult problem which cannot be solved in a hurry but will be overcome in the next few years. In the meanwhile it is hardly reasonable to expect quick action on any consolidation scheme.

Growth and Present Status of Employee Representation*

PART I—*Discussion of fundamental principles and objectives—Its origin and development*

THE historian of American industry, in covering the industrial relations phase of industrial development from 1918 on, will find it necessary to devote considerable space to the origin and principles of employee representation.

It is useful to survey briefly certain underlying truths of human nature as an essential first step in analyzing employee representation. For example, there are two human characteristics that are directly opposite but not contradictory. Like many of the other paradoxes of life, each is important. These two truths are: First, that human beings, in some respects, are infinitely different; and second, the same human beings, in many other respects, are infinitely similar.

All life is organized on these two principles of essential variety, and essential similarity. Twins are alike, also different. Two peas from the same pod, similar as they are, vary in certain essential characteristics. These two truths are bound up intimately with industrial problems, the solution of which is aimed at through employee representation. *Furthermore, this development in human relations can be understood thoroughly only when it is recognized as a means of emphasizing that men who are employees have interests in common with men who are employers, as well as other interests at variance.*

Employee representation endeavors to say: "Yes, we think differently and sometimes we seem to be seeking divergent ends, but difference is not all; for we have much in common. We are parts of a complete whole. The welfare of all of us depends on our getting together and pulling together."

Frozen Into Classes

The past half century in industry has brought about intense specialization, not only of jobs and of functions, but of mental attitudes and of ideas. The human factor has become frozen into classes; with the emphasis on differences instead of on similarities. The two major classes being employer and employee, it is customary to think of them as the only embodiments of class distinction. But there are many other strata. There are many classes within the employee body itself. The gulf between common labor and the skilled machinist often is as wide as the chasm separating management from wage worker. There is always the interesting aristocracy of tools. An oil can or a wrench in a man's hand sets him apart from other workmen who have not gained such distinction, and distinction it is, from the worker's viewpoint.

A solvent is needed for these subsidiary class distinctions as well as for the management-employee problem. Differences will to some extent always exist among men, as long as men are human. Employee representation is an organized attempt to emphasize fundamental things which employers and employees of all classes have in common; to set in motion a centripetal or pulling-

together force, as well as a centrifugal or pulling-apart force in industrial human relations. The initiative for employee representation has come from management. Employer motives regarding representation are difficult to disassociate from the vehicles chosen for its expression; but in the main, judging from management's expressed declarations and also from actual results, its motives have been constructive. The aim of management seems predicated on a desire to build goodwill and sound thinking; to consolidate and co-ordinate human relations for the good of industry; to develop with employees a mutual viewpoint, in which the interests of the whole have a place, as well as the interests of its parts.

In the early days of industry, a condition of comparative simplicity allowed employer and employee to come into contact and to know each other's viewpoint; to get the "feel" of the team in which they were both working, and in whose success they mutually were interested. Labor problems, as we now know them, spring from a condition characterized by the removal of these two parties from such a ground of common interest. In using the various vehicles of employee representation management has aimed to restore this ground under the feet of worker and of executive.

Spirit Back of Employee Representation

Exponents of employee representation are unanimous in emphasizing the necessity of absolute sincerity of purpose, stressing the necessary spirit needed to back and to interfuse the effort fully as much as its form. This spirit is compounded of frankness, willingness to concede, and to hear the other fellow's side, and an interest in men as *men*, as well as employees. As a matter of fact, it would seem as though this emphasis on the spirit of employee representation has misled many executives to believe that such a spirit is all they need to have.

The spirit back of the effort is essential, but it is only the beginning. The attitude and mental states of employees toward the plan; the form of its organization; its sound installation; and the persistent maintenance of it all are factors which carry equal weight with the motive and spirit of management.

Causes of Failure

Employee representation is like any other piece of industrial machinery. Its success depends on (1), fitting the machine to the job, (2), installing it properly, and (3), adequate maintenance.

An analysis of the causes for discontinuing employee representation affords some insight into the importance of factors other than motive and spirit of management. Of 35 such discontinuances analyzed by the National Industrial Conference Board, 12 are attributed to business depression; 12 others to lack of interest; 5 to friction; 3 to bonus or profit-sharing; 2 to domination by a management representative, and one to lack of definite accomplishment. Of these causes, lack of interest,

* The second part of this article, relating to the application of employee representation to the railroads and results therefrom will appear in a later issue.

friction, the bonus or profit-sharing issue, domination by a management representative and lack of accomplishments all smack of inadequate maintenance. They may well indicate insufficient installation also. The underlying causes of discontinuance are thus not entirely accounted for by attributed causes, which actually are merely contributing circumstances of discontinuance. Furthermore, "business depression" is not fully explanatory. A number of the most successful employee representation plans are those which started when the concern was in a period of retrenchment, which fact was capitalized by both management and employees in building a more constructive working force through the aid of employee representation.

In analyzing the principles of employee representation therefore it should be kept in mind that the vehicle counts as well as the spirit, and that every detail of a plan is important because these details, in the eyes of the employees, are the plan.

Conscious Part in Enterprise

A further characteristic principle of employee representation is the organization of human relations on a shop or plant unit basis, instead of solely on a basis of crafts and trades. Large plants especially, and even smaller ones, employ workers representing many trades and crafts. A condition has developed which has stressed primarily the craft or trade interest. The net result of this emphasis over a period of years, when industrial expansion was demanding management's attention for machinery, material, markets and other physical factors, was to solidify an alignment of employer *versus* employee. And this alignment eventually put a brake on united, co-operative effort of the industrial unit—factory, mill or shop. A direct benefit unquestionably comes to worker and management alike through a form of local organization which enables independent assertion by the employee of his interests, in the shop where he works. He comes closer to securing his right and privilege to have a part in the process of production itself over which his employer hitherto has had sole control. The works council endeavors to give the employee more of a voice in the place where he works; and not merely a voice, but a hand as well.

His status becomes raised above that of a wage-worker with exclusive interest centered merely in the bargaining of his wage, his hours of work and other similar matters, and gives him a view of the shop or industry as a whole, so that he may not only earn a wage but have a conscious part in a worthwhile enterprise.

Educational Process Not One-sided

Toward the development of such an enlarged conception on the part of the employee, it is essential that management put forth its most sincere efforts through education which will acquaint the worker with the problems and objectives of the shop or factory in which he spends his working hours. Toward such education and its ensuing contact of worker-minds with management-minds, employee representation has endeavored to make a valuable contribution.

The process is not one-sided. For management educates itself in the process of helping employees toward an enlarged viewpoint. The two parties arrive at facts mutually. As to what facts should be presented by the employer:

"Explain to them," says an executive* who has had an intimate experience with successful employee representation, "about

the balance sheet, and what the balance sheet means. Put all of the cards on the table. Discuss the plans for the future. Tell them the obstacles that threaten the success of the industry. Tell them what your (management's) difficulties are. They do not realize that you have so many or such baffling ones. Tell them something about the business economics that lie at the foundation of your business. Ask for their suggestions. Let them know that you know they have brains. Do not let them think that you have all the brains in the industry. Put up problems to them, and ask for recommendations, and you will get some answers that will surprise and help you. Let them figure out the costs of their individual or small group jobs. Let them have all the responsibility they prove they can carry. Share with them the traditions and the romance of your industry and theirs. I have had people say to me: 'But they will not understand it all.' Their leaders will understand it. The live ones will understand it. The men who are going to take your place and mine some day in our industries will understand it, and they will understand one thing about it, if they do not understand another word or a single figure; they will understand that what you are trying to do is to give them your confidence."

This factor of mutual confidence is universally conceded to be fundamental to success with employee representation. It is a confidence based not on arms-length relations between management and men, but on sitting down together at the same table of representatives chosen by the employees, and of representatives of management. Confidence based on personal contact—which in large industries is rendered practically impossible without a medium such as representation affords—leads to co-operation, and co-operation is a primary objective; not a co-operation commanded from the top, but a co-operation in which the employee, as an equal party at interest, initiates and suggests, not merely follows.

Domination from the Top

Critics of employee representation concentrate especially on the allegation that the plans are in danger of too much domination from the top, and although only 2 out of 35 of the cessations cited above are ascribed to such domination, so that the criticism does not seem justified on a basis of fact, it deserves consideration, if only as a warning against loading up a representation vehicle with too much management, and not bringing employees to a full acceptance of desirability and advantages. In instances where employees themselves have requested some form of representation, the ideal of installation is realized. A plan which starts off with such auspices invariably means far more to the employee than one which has arisen solely from the managerial side. Employees will ignore, if they do not actively oppose, a vehicle handed down to them. Nobody likes patronage, and there is always a suggestion of it when management tries to give anything to employees, even a representation plan designed in their actual interests. The viewpoint of employees toward the plan should be constructively cultivated as a fore-thought and not an after-thought.

In explaining the principles of one of the large representation plans, an official of the company said:

"What we want is committees of employees whose orders come from the bottom, and are not handed down from the top by some people we know nothing about. We shall be better off, by far, if we have our agreements and negotiations between ourselves;—then we understand them."

Principles of Employee Representation

Keeping the representation channel unclogged by domination, either by management or by a clique or group of workers is a vitally essential element in its success.

* E. K. Hall, Vice-president, American Telephone and Telegraph Co., whose employee representation plan includes thousands of employees.

There is no rule-of-thumb for employee representation. Its development, however, has demonstrated certain principles, all of which should characterize whatever plan is selected as the vehicle for a particular plant, the primary essential being that the plan adopted must fit the existing conditions in the specific plant. These principles are recapitulated herewith:

1. The purpose should be clear from the start, and be continually re-stated and emphasized as being not alone to discuss and adjust grievances but to serve as a vehicle of *contact, confidence, conference and co-operation*.

2. Management should be sincere in its purpose, patient and considerate. Success from the start cannot be expected. Early reactions cannot serve as an indication of either success or failure. Employee representation, being a human thing, is subject to the laws of growth which control every living thing.

3. The plan should be administered by a representative body, which means that the best men available on both sides should take an active part in it.

4. Election of representatives from the employee body has been proved most effective when it is by secret ballot, and without company interference.

5. Meetings should be held regularly on a definite schedule; not merely start off with a flourish and die down.

6. Cordial frankness on both sides is essential.

7. Management's friendly interest should be continuous, not flare brightly at the start and then grow dim.

8. The purpose, principles, objectives and details of the plan should be clearly interpreted to the employees, as the foundation of an adequate installation, and then should be continually re-interpreted as an essential of adequate maintenance of the plan.

Details Important

As has been suggested, each and every detail connected with an employee representation plan is important, because such a plan affects human beings who have not only hands and feet and stomachs, but also have minds, attitudes, viewpoints, feelings and ambitions. For example, a plan was drawn up by a large company and after the constitution and by-laws were printed and distributed among employees, the management was surprised and disappointed to sense a widespread, heavy-set indifference. In digging into the causes of this employee attitude, it developed that in the text of the preamble and constitution, the word "rights" had been used repeatedly. Furthermore, the rights of management and the rights of the customer were enlarged upon for several full pages; the rights of the employee netted down to one brief paragraph. The word itself—a detail, of course—was an unfortunate selection in the first place. "Rights" suggests taking off your coat and fighting for something. "Interests" would have been infinitely better, for you are inclined to sit down and sensibly discuss your interests.

Such details as dues, their uses, etc., should be given most careful attention not merely by management, but by employees acting in the formative period as counsellors and representatives of the worker viewpoint.

The fundamental principle and objective of employee representation is sound and workable, and benefits employees, employer and the public when the effort is thoroughly sincere and honest; and when the vehicle embodying it is in harmony with known facts of human nature, and with existing conditions in the given plant.

Employee representation is not a lifeless mechanism. It is a living thing, meshed with the motives, attitudes,

ideas and feelings of the most complex organism in the world—the human being. Because of the complexity of this primary factor, employee representation needs a type of handling which recognizes this humanness, and which is adapted to a flexible human nature, one of the primary laws of which is *change*.

All those who have had experience with employee representation and have expressed themselves regarding it agree that its job is far from being completed; that the plan which hopes to be successful cannot stand complacently with its hands on its hips and survey its accomplishments.

Throughout the literature of employee representation, *the warning note is sounded that its continuing effectiveness and vitality depend on encouraging it to grow; that when any individual plan gets into a rut and becomes routine and habit alone, its days of usefulness are numbered.*

Origin and Development

The growth of employee representation has occurred in a comparatively brief period. Prior to 1917 there were only 12 employee representation plans or works councils in all of American industry. Of the original 12, seven are still in existence. Employee representation's major growth took place between 1919 and 1924, 225 plans being in force in 1919. The survey of employee representation by the National Industrial Conference Board in 1924 showed 841 representation plans in operation, affecting a total of 1,177,037 employees. Undoubtedly there are other existing plans not included in this figure. Some concerns prefer no publicity for their plans.

Whitley Plan in England

The extension of the idea has been marked in this country, but its first powerful impetus was received abroad. The World War brought to the fore in European countries the importance of labor problems. Great interest was aroused as to the stability of future employment relations. The British prime minister in 1916 appointed a committee, later known as the Whitley Committee, with the following objects:

"1—To make and consider suggestions for securing a permanent improvement in the relations between employers and workmen.

"2—To recommend means for securing that industrial conditions affecting the relations between employers and workmen shall be systematically reviewed by those concerned with a view to improving conditions in the future."

The preliminary report of this committee was adopted, and the first British Council under the plan was established in January, 1918. A survey by the Garton Foundation, of London* contained the following significant comment relative to the industrial self-government plan as instituted in the British building trades:

"By the middle of 1917, employers and employees had agreed that the industry should be organized for combined, rather than opposed action.

"In two and a half years of experience, the council has never had a party vote, and as one of its members has well said: 'They were not on the council either as operatives or employers, but were all intent on lifting up the trade. We have glimpsed the possibility of the whole building industry of Great Britain being welded together into one great self-governing democracy of organized public service.'"

European Developments

In Germany, employee representation or works council (Arbeiterräte) was hailed as "producing seeds from which may arise a new social and economic constitution" by the second congress of workers' council in Berlin, in

* Published by Harriscn & Sons, London, 1919.

April, 1919. The German Works' Council Laws of 1920 were called "a measure which the socialists were able to achieve toward socialization of the means of production."

One major difference between the expression of the employee representation principle in the United States and in European countries is that, whereas in the development of the idea in this country the initiative has been largely that of the individual industrial unit, abroad the two parties to a plan have been associations of employers in the same industry, and the labor unions. In Great Britain, Germany, Austria and Norway the representation ideas became codified into law. Austria made works councils obligatory by law July 25, 1919. In Norway a works councils act was passed July 22, 1920.

In the United States, employee representation largely has meant that individual managements and their employees have gathered more closely about a common table of understanding in response to a similar urge to that which in Europe led its proponents to go so far as to enact legislation.

A further difference will be noted in the above allusion to German socialistic aspirations. The works council in Germany and elsewhere abroad was seen as a possible instrument by the more socialistic and radical leaders. There are few, if any, such indications to be found in a study of the employee representation growth in the United States. The opposite has been nearer the fact. Attacks on works councils have often originated in radical leadership, which has accused employee representation of being hopelessly reactionary and too little distinguished by advanced social doctrines.

The Leitch Plan

One of the earliest attempts to put the principle into practical operation in this country was the effort known as the Leitch Industrial Democracy Plan. In 1914, John Leitch interested the management and employees of a large middle-west clothing factory in applying the principles of democratic government to industrial organization. This Leitch plan later became known as Industrial Democracy, and was defined as "The organization of any factory or other business institution into a little industrial state, with a representative government, which shall have both its legislative and executive phases."

Employees were organized so as to have representation in a house of representatives. Management functioned through a senate and cabinet. Modeled thus along government lines, the industrial democracy plan utilized the checks and balances of government. It has been seriously questioned as to whether or not this form is suited to an industrial organization. In industry the time element is of pre-eminent importance; quick action is essential in order that output may not be delayed. The Industrial Democracy type of representation was given considerable trial from 1919 to 1922. Many of this type of councils have since been abandoned or materially altered.

Rockefeller Plan

Another of the noteworthy plans inaugurated prior to the more widespread adaptation from 1918 on of employee representation was the Colorado Fuel and Iron plan of 1915. Its fundamental objective is suggested in these words of John D. Rockefeller, Jr., a moving spirit in its formulation:

"Some months ago I was one of a number of men who were asked two questions by a commission appointed by President Wilson to deal with certain labor difficulties.

"The first was: 'What do you regard as the underlying cause of industrial unrest?'"

"The second: 'What remedy do you suggest?'"

"I stated that in my judgment the chief cause of industrial unrest is that capital does not strive to look at questions at issue from labor's point of view, and labor does not seek to get capital's angle of vision. My answer to the second question was that when employers put themselves in the employee's place, and the employees put themselves in the employer's place, the remedy for industrial unrest will have been found. In other words, when the principle adopted by both parties in interest is 'Do as you would be done by' there will be no industrial unrest, no labor problem."

The so-called Rockefeller plan, which embodies the above principles, has been criticized from time to time as being more a liquidator of grievances than an instrument for developing constructive relationships and providing fundamental education. The vice-president of the company has stated in reply to such criticism that: "Every question arising between the employee and management has been adjusted by peaceful and harmonious methods and to the general satisfaction of all concerned. We have steadily growing confidence in the underlying principles of our plan. We believe that we are faced in the right direction and that the future of joint representation is one of large promise for all concerned."

Employee Representation During the War

The greatest impetus to the employee representation idea was evident from 1917 to 1919. Shop committees were established in 1917 by the United States Shipbuilding Labor Adjustment Board and by the President's Mediation Commission. From then on until the end of the war, 120 such joint committees were brought into being through the efforts of various governmental boards, notably the National War Labor Board. Many of these attempts received scant co-operation from either men or management and were subsequently abandoned. The significant fact is that during this period the representation principle was given widespread prominence and its possibilities inevitably emerged and were sensed by forward-looking employers. The subsequent growth has been rapid and continuous. The National Industrial Conference Board's survey in 1919 disclosed 225 active works councils covering 391,400 employees. Only three years later, the survey of 1922 showed 725 such bodies active, although many of those functioning in 1919 had been discontinued. The number of employees represented had grown to 690,000. Today there are over 800 works councils in operation, embodying considerably over a million employees.

Forms of Employee Representation

There are three major types of plan: committee, employee association, and industrial democracy. Of the total number now effective, 70 per cent are of the committee form, 17 per cent of the employee association form, and 13 per cent are of the industrial democracy form. The industrial democracy form already has been characterized briefly in this analysis.

By the committee form, the employees are given representation through committees which meet and confer with committees representing management. The committees are headed up, as a rule, in a joint committee comprising both employer and employee representatives.

The employee association type of representation comprehends the formation of employees into an association, having a constitution and other necessary instruments. Members of the association elect representatives to serve for a stated period, through whom matters of employee interest are discussed around the table with representatives of management. This association

type of representation has been found particularly adaptable to railroads and a majority of the railroad adaptations of the employee representation principle have been of this kind.

Employee representation has been introduced into concerns of all sizes, for less than 200 employees to thousands, as for example, the American Telephone and Telegraph Company. Plants with less than 200 employees in many cases report that the natural contact of employer and employee is sufficient and that the mechanism of employee representation is superfluous. Establishments of 15,000 and over account for over half the total number of employees represented through works councils.

Used in Many Different Industries

Employee representation has been tried in many different industries. The metal trades, lumber, and printing comprise a large proportion of the total. The most noticeable increase recently has been in the printing trades and in public utilities, especially transportation, including railroads. Railway equipment industries have

CLASSIFICATION OF INDUSTRIES USING EMPLOYEES REPRESENTATION IN 1919, 1922 AND 1924

List arranged alphabetically and classifications numbered, from 1 to 50, not to indicate chronology or ranking, but for clarification in comparing and studying the figures):

	1919	1922	1924
1—Automobiles and automobile bodies	4	3	3
2—Bronze and brass goods	6	6	6
3—Buttons	—	1	1
4—Cameras	—	1	1
5—Cigars	—	2	—
6—Clothing	6	13	6
7—Coffins	—	1	1
8—Cotton oil refining	—	—	1
9—Dye and Chemicals	—	4	3
10—Electrical Goods	12	7	12
11—Engineers	—	1	—
12—Fertilizers	1	1	1
13—Firearms and ammunition	5	—	—
14—Food products	7	33	41
15—Foundries	1	1	6
16—Furniture	—	4	1
17—Government	—	1	1
18—Hardware	4	24	23
19—Ice and coal distribution	—	1	—
20—Iron and steel mills	20	17	17
21—Leather and Leather Products	1	15	12
22—Longshoremen	—	23	35
23—Lumber	4	238	160
24—Machinery and appliances	41	38	34
25—Machine Parts	12	8	5
26—Metal beds	—	1	1
27—Milk distribution	1	2	1
28—Mining	10	53	16
29—Motion pictures	—	1	—
30—Office appliances	3	4	1
31—Paper and paper products	1	9	10
32—Petroleum	3	18	19
33—Printing	1	5	111
34—Public utilities (Other than St. Rlws.)	4	10	26
35—Paints	—	1	—
36—RAILROADS	—	1	35
37—Railway equipment	—	83	83
38—Retail stores	—	—	26
39—Rubber Goods	1	24	38
40—Sheet metal, wire, wire products	14	4	3
41—Shipbuilding	31	9	6
42—Silverware	2	5	10
43—Smokers' articles	1	1	1
44—Soap	2	4	4
45—Structural Steel	3	3	3
46—Street railways	—	8	18
47—Textiles	4	30	28
48—Tool-making shops	15	—	—
49—Watches and musical instruments	2	3	3
50—Wood products	3	3	3
Totals	224*	735*	812*

* Plans affecting several plants of the same company listed as one unit, accounting for the slight variation from figures cited elsewhere.

also made use of employee representation, as have many of the industries which are large railroad shippers.

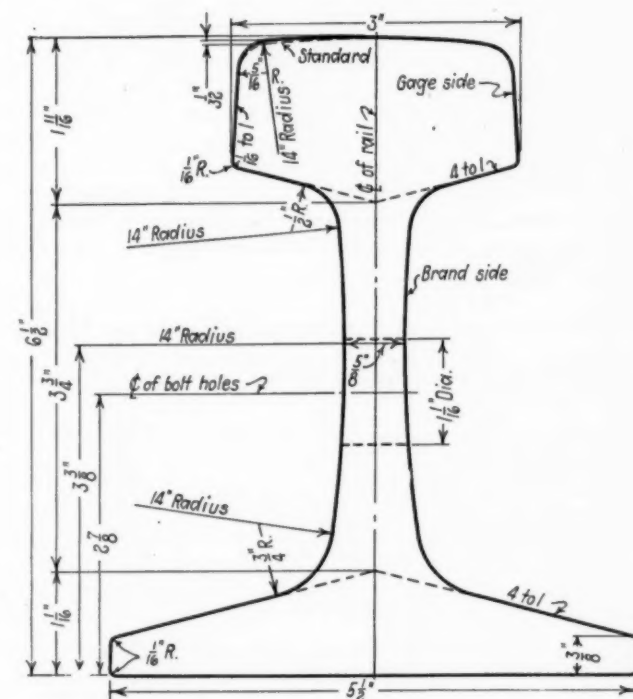
Distribution of employee representation by industries is shown in the accompanying table. The columns at the right show the comparative numerical strength in 1919, 1922 and 1924. The number of plans in these three years serves as a basis of comparison, indicating the growth of representation. Many of the plans hur-

riedly thrown together during the post-war boom were unable to stand depression. Other groups of plans initiated under special circumstances show fluctuation, as in classification 28 (mining) and 41 (shipbuilding). A study of the following tabulation shows in the main, however, an interestingly steady development. Fifty separate classifications are included, comprising the principle ones on which data have been available.

Part II of this article will discuss the application of employee representation to the railroads and the results which are thus far apparent; it will appear in an early number.

P. & L. E. Cants Head of Rail

WITH the view of securing the benefit of canted rail, namely, the more uniform wearing of the rail head with its resultant increase in the life of the rail, which has commonly been attained by means of the canted tie plate or the adzing of the ties on an inclined plane, a modification of one of the standard rail sections has been developed and is being used on the Pittsburgh & Lake Erie, which in effect produces the desired cant without resorting to either of these methods.



The Unsymmetrical Head Rail Section is a Variation of the Standard 115-lb. Dudley Section

This is attained solely by the redesign of the standard rail head, which has been changed from a symmetrical section to one having a canted wearing surface. The particular section used on the Pittsburgh & Lake Erie is a slight variation of the 115-lb. Dudley section, which differs from the standard section only in the distribution of the metal in the rail head, the upper surface of the new head having a cant of about 1 in 75, by increasing the height of the rail on the outside 1-32 in. The center height and other dimensions of the new section have not been changed from those of the standard section.

The development of the canted or unsymmetrical rail head section on the P. & L. E. was the direct result of

the effort on the part of that road to reduce the rapid wear of the head of the standard rail section on the gage side, and to distribute the wear more uniformly over the head without the necessity of installing canted tie plates or injuring the ties. The latter consideration was one of large importance on this road since, for the most part, it has in service hewn ties which were mechanically adzed and bored previous to their treatment. In all cases these ties were adzed in a horizontal plane and drilled with four holes on each end, two diagonal holes being for screw spikes used to secure the tie plates to the ties and the other two for cut spikes to hold the rail in place.

With the ties so adzed and bored, it was obvious that to secure the result desired by inclining the rails would throw the rail head inward and produce tight gage, if the same spike holes were used, and on the other hand would seriously injure the ties if the rails were spread at the base a sufficient amount to give proper gage, thus necessitating the redriving of both screw and cut spikes at points removed approximately one-half the diameter of the bit from the original holes. To do this meant not only the mechanical destruction of the ties, but also greatly reducing the holding power of the spikes. As an alternative to secure the desired rail cant the unsymmetrical rail head was suggested and adopted. The first rail of this section was laid during 1925, in which year the P. & L. E. purchased 10,000 tons. The results obtained with this rail were so satisfactory that an additional 10,000 tons have been ordered for use in this year's rail program. The rails are all laid with the brand on the gage side so that the slope on the top of the head points down toward the gage side.

The unsymmetrical or canted head rail section was designed by the inspecting engineer's office of the New York Central Lines, in conjunction with A. R. Raymer, chief engineer, Pittsburgh & Lake Erie, who has had general supervision over this rail in service.

Master Blacksmiths Meet at Cleveland

AT the thirtieth annual convention of the International Railroad Master Blacksmiths' Association held at the Hotel Winton, Cleveland, Ohio, August 17, 18 and 19, 1926, an attendance of 215 members, guests and supply men was registered. The entire sessions this year were devoted to the presentation and discussion of committee reports on autogenous welding, carbon and high speed steel, drop and machine forging, drawbars and drawbar pins, frame making and repairing, heat treatment of steel and iron, reclamation, spring making and repairing, safety first and tools and formers.

At the opening session, the convention was addressed by J. M. Fitzgerald, former president of the Western Maryland Railway—now a member of the Committee on Public Relations of the Eastern Railroads.

Practically all of the speakers emphasized the necessity of improving blacksmith shop equipment in order to economically handle the higher class of work demanded in the maintenance of modern motive power. Especial interest was evidenced by the discussion on the subjects of drawbars, heat treatment of steel and spring making. Some difference of opinion seemed to exist as to the most serviceable material for the manufacture of drawbars and the proper method of preparation for service. The discussion of this subject brought out the experience of many roads in the handling of drawbars and the con-

sensus of opinion seemed to favor those made of soft steel with a carbon content of .08 to .15 per cent, normalized after forging. A representative of one road which has been successful in minimizing drawbar failures pointed out that drawbars are inspected and removed from service for inspection and repairs at intervals of six months.

Recognition was made of the fact that the rapid development in the use of high grade alloy steels for locomotive parts necessitates the equipment of railroad blacksmith shops with proper equipment for the accurate heat treatment of steel. It was pointed out that proper heat treating is necessary to take full advantage of the service possible through the use of high grade alloy steels. During the discussion on heat treating, several members touched upon the importance of properly handling locomotive main and side rods. The importance of accurate temperature control equipment on heat treating furnaces was brought out. The importance also of allowing the proper amount of time for each stage of the heat treating processes was pointed out.

On the subject of spring making the discussion brought out the difficulty of consistently making springs which will give long service under varying conditions. Practically every speaker emphasized the vital importance of securing spring steel of uniform analysis. With a consistent grade of steel and accurate heat treating processes and equipment, it was pointed out that there should be relatively little difficulty in producing springs which will perform consistently under service conditions. It was suggested by one speaker that the proper heat treating equipment and processes will, to a large extent, compensate for varying grades of steel providing the heat treatment is scientifically worked out so as to be particularly suited to the different grades of steel. In the manufacture of springs it was pointed out that a most important factor is the proper heating of the plate so as to insure the plates being heated clear through. In assembling springs it proved to be the experience of one road that a factor in the reduction of spring failures was the cooling of spring bands immediately after being pressed on. The reason for this is that if the hot bands are allowed to cool normally the heat in contact with the spring plates draws the temper from the top plates of the assembled spring, thus effecting the molecular construction of the top plate.

Election of Officers

The following officers were elected to serve for 1926-7: President, L. C. H. Weideman, C. C. C. & St. L., Beech Grove, Ind.; first vice-president, W. W. Shackford, A. C. L., Waycross, Ga.; second vice-president, J. J. Haggerty, N. Y. C., Albany, N. Y.; secretary-treasurer, W. J. Maver, M. C., Detroit, Mich. The 1927 meeting will be held in Buffalo.

THE SOUTHERN announces that its line from Macon, Ga., to Jacksonville, Fla.—the Georgia Southern & Florida—is to be made fit for first-class trains throughout its length, 262 miles. Rails of 85-lb. section will be laid on 250 miles of track (now laid with lighter rail) and automatic block signals (of the color-light type) are to be installed throughout the 262 miles. With the completion of this installation, the Southern will have automatic block signals throughout its line from Cincinnati, Ohio, to Jacksonville, the signals between Chattanooga, Tenn., and Macon, Ga., being now under construction. The bridges between Chattanooga and Macon are being strengthened, where necessary, to permit the operation of the heaviest locomotives. Longer passing tracks are to be laid between Macon and Jacksonville.

Importance of Motive Power Maintenance*

Locomotive failures increase rapidly when appropriations for repairs are reduced

By A. G. Pack

Chief Inspector, Bureau of Locomotive Inspection, Interstate Commerce Commission

ALL successful rail activities are dependent upon the smooth and uninterrupted flow of traffic which is possible of attainment only when the motive power measures up to the requirements. The ability to handle future traffic is dependent upon the judgment and foresight of those now guiding the destinies of the railroads by providing proper and sufficient equipment, with shops and tools for maintaining it. To handle the present volume of traffic satisfactorily is also a function of the present management by utilizing the equipment and other facilities with which we are now provided to the greatest possible advantage, and herein lies the proof of man's stamina.

It has been my general observation that where motive power and other rolling stock is maintained in a high state of efficiency that the operating efficiency is also high. Wherever we find the conditions of locomotives good and in proper compliance with the Locomotive Inspection Law and rules, dividends are usually being earned, shippers and travelers are better satisfied with the service rendered, and a better feeling prevails among railroad officers and employees.

Teamwork is a wonderful thing and the leader who has the personality to establish an esprit de corps in his organization will go far in bringing about the most desired results. When men work in unison for a common cause and with a common understanding, their efforts are almost irresistible. The trend of the times is toward a higher standard of maintenance and utilization of equipment. The railroads are now confronted with costs undreamed of 25 years ago; therefore, strict attention to every detail is necessary.

Remarkable Results in Fuel Savings

The results of the campaign which is being so generally waged toward more effective utilization of railroad facilities is indicated in the Progress report of the Joint Committee of the Mechanical Division, V. A. R. A. on "Utilization of Locomotives," from which is quoted:

"During the year 1925, an average of 158.9 lb. of fuel was required to haul 1,000 tons of freight and equipment, excluding locomotive and tender, a distance of one mile as against an average of 169.9 lb. for the year 1924. In passenger service an average of 16.10 lb. of fuel was required to haul a passenger train car a distance of one mile as against 16.96 lb. for the year 1924. Had the 1924 unit consumption figures obtained during 1925, Class I railways would have required an additional 5,596,000 tons of coal in freight service, and an additional 1,606,000 tons in passenger service to handle the volume of business offered, making an enormous total of 7,202,000 tons of coal saved in road train service; this being exclusive of saving effected in yard service, station service, etc."

It is not my opinion that this saving was entirely brought about by long runs now being generally established, nor by the effort of fuel organization, nor by the better utilization of motive power, but was largely brought about by the mechanical organization in maintaining the motive power to a higher degree of efficiency than I have ever before known. The compliance with the Locomotive Inspection Law and rules during this period has been generally better throughout the United States than I have ever before known during my more than 15 years of experience with the Bureau of Locomotive Inspection.

Conservation of Life and Property

My position during the past 15 years has given me a broad prospective—my view is that of the country as a whole. Some railroad officers have regarded the passage of laws toward safety as a reflection upon their sincerity and efforts to prevent accidents, and upon their ability in that direction, and as an unnecessary restriction upon their freedom of action. This view may seem to be right and yet time has shown that they are entirely wrong. No one questions the fact that railroad men as a class are actuated by a keen desire to conserve human life and property, but the pressure from sources which need not here be enumerated has been and often is so great that they cannot do what they know should be done.

The railroad organization is comparable to a steam driven high speed machine worked to its capacity with the pressure ever increasing. Safety laws may be likened to safety valves designed for the purpose of regulating that pressure and to keep it from wrecking the machine. The necessity for such laws is made apparent from a review of the statistics of the Interstate Commerce Commission. For example, if we consider the number of accidents which occurred during the three fiscal years ending June 30, 1923, 1924, and 1925, which were caused by the failure of some part or appurtenance of the locomotive and tender, it will be seen that the number of accidents reported during the year 1923 was 1,348, which resulted in the death of 72 persons and the injury of 1,560 others. In 1924, there were 1,005 accidents resulting in the death of 66 persons and the injury of 1,157 others. While during the year 1925, there were 690 accidents resulting in the death of 20 persons and the injury of 765 others, or a reduction in the number of fatal accidents in three years of 72 per cent, and the number of personal injuries of 51 per cent.

A further analysis of the statistics of the Interstate Commerce Commission shows that during the period of five years ending December 31, 1925, there were 9,118 passengers and employees killed. While this figure is staggering, the improvement shown by comparison for the five-year period ending July 30, 1915, is a strong endorsement for safety first. The number of similar

*Abstract of paper presented at the July 15, 1926, meeting of the Southern and Southwestern Railway Club, Atlanta, Ga.

fatalities during the earlier period mentioned was 17,726. These data do not include accidents to trespassers on the right-of-way nor at grade crossings. Comparison of these data shows a reduction of fatal accidents of 48.5 per cent when comparing the two periods. It is apparent that hazards incident to railroad operation are gradually being reduced notwithstanding the ever increasing volume of traffic being moved. However, we must not be premature in congratulating ourselves on this work. The surface is barely scratched and much remains to be done ere the goal is in sight.

The question of safety of locomotive operation is one that is frequently confronting me. It is my first and greatest duty to conserve human life and limb to the greatest possible extent. It is equally your duty. We may with great enthusiasm improve the efficiency of operation, bring about a lower operating, construction, and maintenance cost, but if we have failed to properly protect the lives and limbs, and to some extent the destinies of those associated with us in our life work, we have failed miserably in the accomplishment of our mission—that of doing good. If we can do something that will save the life or limb of a single person, we have accomplished something that cannot be evaluated. Many things have been done to make the locomotive more efficient and safer, but much yet remains to be done. When some great disaster occurs, we are stirred into action, but should our efforts be less because the prevailing situation appears fairly satisfactory? The answer is, we must constantly strive for bigger and better accomplishments. It is by evolution that mankind has progressed and we must grow as the world grows, seeking each day to do something of greater value. We cannot stand still. Human nature is so constituted that we must move forward to greater achievements, otherwise we grow stale, inactive, and finally come to ruin. Every day in our lives we observe some condition which, if not remedied, will sooner or later bring sad results.

If all the deaths and injuries caused by locomotive failures during any single year were the result of a single accident, it would be termed a calamity and would be featured on the front pages of newspapers all over the country; but when they occur one by one they are too often given little thought and consideration—too often considered the result of a natural cause or turn of events incident to the hazard of railroad life. The untimely loss of life or limb of a single person is just as serious to him, his family, and friends, as though there had been thousands of others killed or injured at the same time.

I have found that accidents of a particular nature occur at some places which seldom if ever occur at others. They are too scattered to come under the observation of the average individual stationed in any one locality, therefore, the necessity for being ever alert in remedying improper and unsafe practices.

It is well established that locomotive and train operations are hazardous occupations even under the most favorable circumstances. Practically all accidents are chargeable to the twin evils of ignorance or carelessness which can be avoided by means known to those who are well informed, barring, of course, the weakness of human nature which is possessed by all to a greater or less degree, to a greater degree by some than by others.

The present day leader is chosen because of his knowledge and his ability to lead men, therefore, is particularly adapted to promote the cause of safety and the welfare to a greater or lesser extent of those with whom he is associated. If a man is ignorant of dangers which beset his pathway, it becomes our duty to advise him of such dangers and to teach him by precept and example. The habitual careless, indifferent, and reckless man has no

place in any profession where the utmost care is necessary at all times.

Frequently when accidents occur they may be traced back to a very minor detail, as minor as the omission of lock nut or cotter key. A recent experience amply demonstrates the necessity for looking after and guarding against things that are most frequently termed minor and unessential. There occurred a rear-end collision between two passenger trains resulting in the death of 11 passengers and four employees and serious injury of 82 passengers and four employees caused primarily by an air hose on the rear end of the tender on the leading passenger train bursting—defective—which caused the brakes to be applied in emergency. It is true that the report indicates that the rear end of the train was not properly protected in accordance with the railroad company's flagging rules and because the engineer of the following train failed to observe the block signal; nevertheless this accident with its terrible result may be traced back to the burst air hose.

You may remember the childhood rhyme beginning, "For the want of a nail the shoe was lost," and tracing the loss of the shoe to the loss of the horse, then to the loss of the man, and finally to the loss of a kingdom. It is thus in daily life—the omission of an insignificant duty in the beginning may have a far-reaching and disastrous effect.

I am a strong believer in the value of personal contact and friendly relations. If we are to obtain the best results and not waste our energy through friction which accomplishes nothing, we must have teamwork—genuine co-operation. In dealing with others, we should give that which we might expect to receive if we were in the other man's place. It has been my constant endeavor to encourage friendly relations between my staff and those with whom they come in contact in the performance of their daily duties to the end that we may arrive at a mutual understanding of the many perplexing questions which constantly arise.

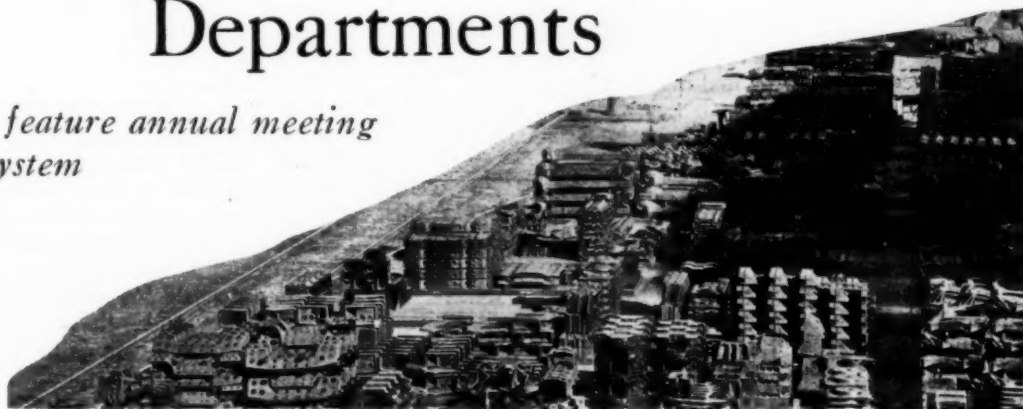
The purpose of the locomotive inspection law can be perhaps no more clearly explained than as expressed in its title, "To promote the safety of employees and travelers upon railroads by compelling common carriers engaged in interstate commerce to equip their locomotives with safe and suitable boilers and appurtenances thereto," which, as you know, has been extended to cover the entire locomotive and tender.

Before concluding, there is one thought to which I would like to invite your most earnest attention, and that is, the direct relation between the maintenance of motive power and the number of accidents which occur. Locomotive failures increase rapidly when appropriations are reduced which necessitate the curtailment of forces and material beyond that necessary to properly maintain the equipment. Correspondingly when appropriations made for the mechanical organizations are raised to a sum ample for maintenance, the failures on the train sheet begin to fade away like snow in the springtime, and the dispatcher decides that this old world isn't such a bad place after all.

In its motive power a railroad has certain potential wealth in the form of unused mileage. If any railroad continues to draw on its capital without making restitution in the form of repair work, some day there will come a reckoning and the penalty will be measured in terms of accident and failure reports. My position does not permit me, and I have no desire to interfere in the policies of any railroad management, but would like to suggest that money well spent on motive power is insurance which provides against failure in times of stress and is not, as is thought by many men, money wasted.

Erie Gives Prizes to Best Store Departments

Efficiency awards feature annual meeting at Kent, Ohio—System officers present



THE Erie stores department recently held an annual meeting at Kent, Ohio, which was productive of many interesting facts about this road's supply department, the progress made in the direction of efficiency and the recognition given the work. Notable among these was the steady reduction which has taken place in the supplies carried in stock on this road from approximately \$12,000,000 in 1921 to approximately \$7,000,000 at the close of 1925; also the attendance at the meeting from other departments of the chief system mechanical engineer, the regional vice-president, the regional engineer, the superintendent of production and apprentices, the division superintendent, division engineer, chief chemist and shop superintendent. But the most interesting feature of the meeting was the awarding of prizes for the best supply department on the road for the year.

Bronze Tablets Given

As described in the August issue of the Erie Employees' Magazine a committee was appointed four years ago to make an annual inspection of storehouses and stores department operation and to award prizes to the most proficient. The purpose of such prizes is: (a), to increase competition between storehouses in caring for, conserving and accounting for company funds, both materials and labor; (b) to develop initiative in finding ways and means of utilizing existing facilities to the fullest extent in accordance with the best and most economical practices, and (c) to recognize those employees who have accomplished the best results and to indicate the management's appreciation of their efforts.

The prizes consist of: (a) a first and second prize for the best and second best division storekeeper's territories, the prizes to be apportioned annually to the division storekeepers and their staffs, and (b) a first and second prize for the first and second best individual storehouse, considering only physical conditions, this prize to go to the division storekeeper and storekeeper or foreman or other employee having the direct supervision and responsibility. This award is made in order to recognize the individual storehouse where the best results have been obtained, regardless of the showing for the entire division.

Suitable engraved tablets of bronze are placed on first prize division and in the first prize storehouse each year.

The first prize for 1925 was awarded to the Kent car shop, Kent, O., and the annual meeting of the stores department was therefore held at that point. All the officers of other departments present addressed the meet-

ing and placed particular stress on the high standard of efficiency attained through the splendid spirit of co-operation, good will and teamwork in all departments. W. A. Baldwin, system vice-president of the Erie, sent a letter regarding balances, costs and increased reclamation of material.

Many Subjects Discussed

Papers covering 22 different subjects were presented and discussed, among which were the following:

- (a) What results have been obtained from assembling of material?
- (b) What can and should be done to clear the accounts of obsolete, surplus and slow-moving material?
- (c) Reduction in balances, costs, scrap and reclamation of material and its value to the railroad.
- (d) Proper taking and handling of test and annual inventories.
- (e) Advantages and disadvantages of sectional store-keeping.
- (f) What has been and still can be accomplished by the standardization committee?
- (g) What should be done to improve delivery of material for maintenance of way department?
- (h) Advantages and disadvantages of 60-day supply train schedule as compared to the previous 30-day schedule.

The keynote of papers and discussions was that the stores department is one of service and that it has to rely upon the enthusiastic co-operation of the using departments, all of whose representatives should have an intimate acquaintance with supply department operations. The importance of frequent conferences between local storekeepers and their staffs, as well as a full attendance at staff meetings of other departments, and of having users make complaints, suggestions and recommendations as to the economic results of material furnished was insisted upon. Attention was drawn to the fact that the railroad must haul a ton of freight 100 miles to earn one dollar gross revenue with which to pay the 30 cents of every revenue dollar absorbed in material and supply expenditure.

Stocks Reduced Five Million Dollars

The Erie system comprises 2,688 miles of trackage, handles in a year more than thirty million passengers, hauls more than forty-four million tons of freight, and has an equipment of about 1,500 locomotives, 55,000 freight cars and 1,400 passenger cars. It traverses six states through territory comprising almost 40 per cent

of the nation's population and probably 50 per cent of the national wealth. It is not only a through carrier between Chicago and New York but originates large tonnage.

The total annual charges for material and supplies on the Erie, including fuel coal, are about \$34,000,000. Among the expenditures making up this sum are: Coal, \$9,500,000; cross and switch ties, \$2,500,000; rail, \$1,500,000; lumber, \$1,200,000; wheels, \$1,200,000; frogs, switches and guard rails, \$700,000; castings, \$500,000; journal bearings, \$450,000; stationery, \$450,000; welding and cutting, \$400,000; iron and steel, \$350,000; oils (excluding fuel), \$350,000; ballast, \$325,000, and tie plates, \$275,000.

Exclusive of rail, ties and fuel coal the material and supply balance for certain years, and as of April 30, was as follows: 1921, \$11,849,313; 1922, \$7,914,889; 1923, \$8,669,204; 1924, \$8,560,569; 1925, \$7,773,776, and Dec. 31, 1925, \$7,000,000.

The reductions were made possible (1) by the installation of stock books, with a master stock book in the central office, against which all requisitions are checked, this making possible the transfer of material from one point to another as needed and thus avoiding the purchase of material available elsewhere on the line; (2) by putting into effect standard practices insuring uniformity; (3) by improving physical conditions with unit piling and unit count of material, resulting in quick monthly inventories; (4) by assembling slow-moving material at strategic points where it could be secured quickly; (5) by watching obsolete material, the retirement of old equipment, the standardization of material and the study of standards.

Progress in Standardization

Although standardization is still in its infancy, the Kent meeting brought out that substantial progress has been made, considering the research work needed. The concentration of material at store points, particularly maintenance of way material, is a determining factor in the reduction of line stocks. At the Kent meeting all present realized the importance of specifying delivery dates on requisitions to conform closely to the date on which the material will be required.

Annual inventory adjustments from year to year worked out well. The adjustment for 1925 was approximately \$2,000 and will not be exceeded in the current year.

For April, 1922, the average cost of handling \$1,000 worth of material was \$26.50; for April, 1926, it was \$23.79.

In discussing scrap and reclamation of material it was indicated that if the scrap for 1925 had been sorted on the basis of that sold in 1922 the net revenue from scrap sales would have been \$52,000 less. The average haul per gross ton was reduced from 215 miles in 1922 to 163 miles in 1925. The cost of sorting has been cut to make a payroll saving of about \$20,000.

Reclamation Saves Million Dollars

By using reclaimed material in 1925 a saving of \$1,000,000 resulted. The material reclaimed includes brake-beams, track spikes, bolts, draft gears, etc.

Formerly the supply train was operated every 30 days. Now it is operated every 60 days, and the 60-day method effects a saving of approximately \$30,000 per annum. A committee is investigating a proposal to add a crane to the supply train equipment to pick up scrap. This will insure a clean-up of the entire railroad every 60 days and the scrap can be turned into cash more quickly.

Sectional storekeeping was declared in one paper to

be desirable in reducing balances and costs of operation at large terminals and in bringing about co-ordination with the using departments.

The general lumber and tie inspector, in a paper, said his force inspects annually 40,000,000 ft. of lumber and more than a million ties. Improvements have been made in the standardization of lumber and a reduction in the cost of inspections.

A paper on maintenance of way material referred to a recent change in the location of line checkers, who have been transferred to the division engineer's office, though still under the jurisdiction of the stores department. The change will tend to the further reduction in line stock.

Combination buildings are being put up for the storage of materials for track foremen, signal maintainers, car repairers and others. Outside uniform bins and platforms for the care of heavy track material and scrap are under investigation.

Those at the Kent meeting thought that in all car movements Erie equipment should be used, where possible, to save the per diem charges.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loadings in the week ended August 14 amounted to 1,109,557 cars, the highest figure recorded for any week this year, and an increase of 45,081 cars over the corresponding week of last year, and of 156,149 cars as compared with 1924. As compared with the preceding week this year, when loadings totaled 1,083,199, the loadings of all commodities were heavier, with the exception of grain, coke, and l. c. l. merchandise. As compared with the corresponding week a year ago, loadings of all commodities were larger, live stock excepted, and as compared with the 1924 week grain was the only commodity of which loadings were lighter. It was the twelfth consecutive week this year that car loadings have exceeded the million mark. The summary, as compiled by the Car Service Division of the American Railway Association follows:

REVENUE FREIGHT CAR LOADING
WEEK ENDED SATURDAY, AUGUST 14, 1926

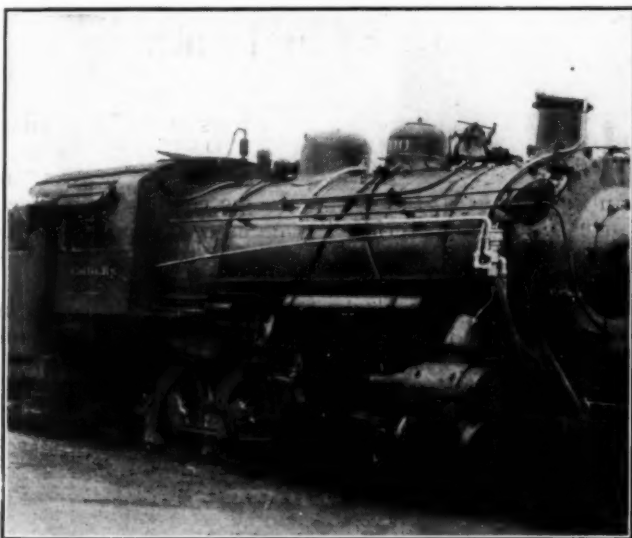
Districts:	1926	1925	1924
Eastern	259,030	248,738	217,685
Allegheny	222,564	212,145	187,055
Pocahontas	61,617	57,656	43,970
Southern	150,793	148,692	135,320
Northwestern	173,788	165,788	144,101
Central Western	161,224	151,718	157,625
Southwestern	80,541	79,739	67,652
Total Western Districts	415,553	397,245	369,378
Total All Roads	1,109,557	1,064,476	953,408
Commodities:			
Grain and Grain Products	58,397	54,593	60,120
Live Stock	30,540	30,854	30,365
Coal	193,184	191,479	145,263
Coke	11,548	9,742	6,914
Forest Products	71,825	70,894	69,553
Ore	79,370	64,750	50,178
Mdse., L.C.L.	262,894	258,992	241,938
Miscellaneous	401,799	383,172	349,077
August 14,	1,109,557	1,064,476	953,408
August 7,	1,083,199	1,052,518	941,407
July 31,	1,102,590	1,045,626	945,613
July 24,	1,085,450	1,033,519	926,309
July 17,	1,083,626	1,012,854	930,713
Cumulative total, 33 weeks ..	32,474,487	31,390,575	29,530,489

THE CAR SERVICE BUREAU of the Chicago, Milwaukee & St. Paul, which is located in Chicago, appears in due form in the telephone directory of the city; and in addition to this the railroad company has in the directory an advertisement, calling attention to the existence of the bureau and informing shippers and others that it is prepared to give attention to the tracing of car load shipments and, in general, to questions relating to the disposition of freight.

Automatic Drifting Throttle and Relief Valve

AN automatic drifting throttle and relief valve has been designed and patented by W. W. Boulineau, master mechanic on the Central of Georgia at Cedartown, Ga., and is being sold by the Walraven Company, Atlanta, Ga. It has been thoroughly tested on Central of Georgia locomotives which tests results are said to have shown a saving in fuel consumption, increased mileage of cylinder packing rings, a reduction in carbon formation in the cylinders and valve chambers and a reduction in the cost of cylinder and valve lubrication.

The drifting valve consists of two large chambers, one at each end of the valve, joined together by a long chamber of smaller diameter. The top chamber, which contains the floating operation piston, has an outlet to which is connected a $\frac{3}{8}$ -in. pipe leading to a three-way valve in the cab. The bottom chamber, which contains the large



The Valve is Located on the Right Side of the Boiler Near the Front End

differential attached piston, has an outlet for a $\frac{3}{8}$ -in. pipe which leads to the steam pipe. The middle chamber contains three openings. The one admits steam from the steam dome, the other steam from the cylinders and the third is the connection to the atmosphere or exhaust. This cylinder contains three pistons mounted on a common piston rod, at the lower end of which is attached the differential piston, at the upper end the smaller differential piston and in the middle two piston valves.

When the two piston valves are over the opening leading to the cylinders, the differential pistons are balanced by steam entering from the steam dome underneath the small piston and by steam entering from the steam pipe underneath the large piston. The device is then in the running position.

When the main throttle is closed a partial vacuum is formed in the lower chamber by means of the $\frac{1}{2}$ -in. pipe connection from the locomotive valve chamber. Atmospheric pressure then acts against the opposite side of the large differential piston, thus moving it from its running position. In this position steam is admitted to the cylinders from the dome. The valve is now in the drifting position.

The valves are moved to the relief position by the

steam in the operating valve chamber being exhausted to the atmosphere through the $\frac{3}{8}$ -in. pipe leading out of the top of the chamber and the three-way valve in the cab operated by the engineman together with the steam from the valve chambers acting against the large differential piston. The steam from the cylinders will then pass to the atmosphere through the pipe leading from the cylinder out through the pipe leading to the exhaust. The valve will remain in this position until steam is again admitted to the chamber containing the floating piston by the operation of the three-way valve.

Second Illinois Central Train-Control Approval

THE Interstate Commerce Commission on August 16 approved the second installation of automatic train control apparatus on the Illinois Central—the one which was described in the *Railway Age* of August 14, page 287. As noted in that description, the Illinois Central has completed both of the installations ordered by the Interstate Commerce Commission, one in Illinois and one in Iowa. Both are the Union continuous induction type, with forestalling feature. The approval of the first installation was reported in the *Railway Age* of August 21, page 33. The present order of the commission is similar to the previous one and requires but brief notice. The Iowa installation lies between West Waterloo and Fort Dodge, 97.6 miles, single track; number of locomotives equipped, 37. The cost, as reported by the railroad to the commission amounted to \$374,324.03, stated as follows:

(1) ROADWAY	
Total cost of roadway equipment of train control installation, less power lines and power apparatus, if any, and less signals or cost of change in existing signal system; less salvage.....	\$207,107.00
Total cost of power lines and power apparatus, if any, less salvage	43,274.00
Total cost of signal system installed in connection with train control; less salvage. (This includes installation of head block signals at passing tracks and route locking at seven interlocking plants).....	25,725.00
Total cost of changes in existing signal system made necessary by train control; less salvage.....	.....
Total all other roadway equipment costs, if any....	5,149.00
Total cost of roadway installation.....	\$281,255.00
*(2) LOCOMOTIVE EQUIPMENT	
Number of locomotives equipped.....	38
Cost per locomotive equipped.....	\$2,449.18
Total cost locomotive equipment installed.....	93,069.03

*Labor, material and device costs are included in each item.

There are no visual roadside signals except at the 21 stations. There are interlocked grade crossings at

Location	Crossing	Type of Signals
West Waterloo.....	W. C. F. & N.....	Mech. U. Q.
Cedar Falls.....	C. R. I. & P.....	Hall T. P. U. Q.
Ackley.....	M. & St. L.....	Mech. L. Q.
Iowa Falls.....	C. R. I. & P.....	G. R. S. model 3, L. Q.
Webster City.....	C. & N. W.....	Mech. L. Q.
Gypsum.....	C. G. W.....	Mech. L. Q.
Gypsum.....	Ft. D. D. M. & S.....	Mech. L. Q.

The regular sources of power supply are at West Waterloo, Parkersburg, Iowa Falls, Webster City and Fort Dodge. Emergency supplies are available at New Hartford, Austinville, Williams and Duncombe.

The approval of the commission, as in the earlier order, is without qualification. The supplementary requirements are as follows: Numbers 1, 2 and 3, substantially the same as in the former order. The fourth and last requirement refers to unnecessary red cab-signal indications occurring on May 18 and May 26, which were attributed to low a.c. track energy, due to leakage

between the rails in wet weather, a condition which "must be promptly overcome."

As in the former case Commissioner McManamy took no part in the consideration of the case.

High Pressure Grease Gun for Rod Bearings

THE device shown in the illustration and known as the Spee-d high pressure grease gun has been used successfully for lubricating connecting rod bearings on the locomotives of a southern railroad for nearly four years. This grease gun, a half-section of which is shown in the drawing, is being marketed by the Reliance Machine & Stamping Works, Incorporated, 900 Tchoupitoulas street, New Orleans, La.

It consists essentially of a tool steel base which fits

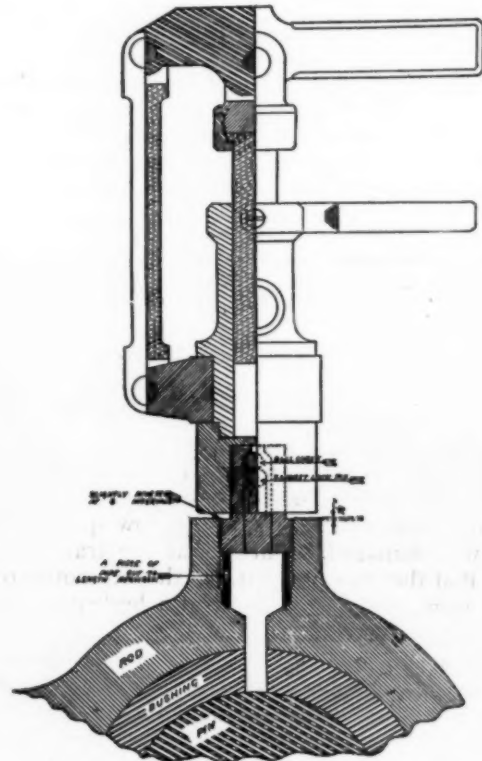


Lubricating a Side Rod Bearing with the Spee-d High Pressure Grease Gun

over the Spee-d rod cup filler neck, a piston for forcing grease into the bearing and a handle for operating the piston. Screwed into the top of the base is the piston casing, in the side of which is a large hole through which the grease stick is inserted. A short handle is secured to the top flange of the piston casing, as shown in the drawing, for the convenience of the operator when applying or removing the grease gun from the rod cup filler neck. The piston is pivoted to the operating handle which in turn is fulcrumed to a collar. The collar fits around the bottom of the piston casing and

can be turned freely in either direction with the piston operating handle. This permits flexibility in operation, especially if the grease gun must be operated between a side rod and driving wheel, where the clearances are close.

The gun is held in place on the rod cup filler neck by a bayonet lock pin. In fitting up a locomotive for the use of this device, Spee-d rod cup filler necks are installed on all bearings in place of the ordinary grease plugs. In so doing, a short piece of pipe cut to the required length is inserted in the grease cup and the rod



Sectional Drawing of the Spee-d Grease Gun Applied to the Rod Cup Filler Neck

cup filler neck is then screwed down tight against the top of the pipe and riveted or welded in place to prevent any movement.

A bearing is lubricated by inserting a formed stick of pin grease through the hole in the side of the piston casing, the end of the piston being raised above the hole. The piston is then brought down and the pin grease inside the hole is cut off and forced down to the bottom of the piston casing, this operation being repeated until the piston casing is filled up to the hole. The operator then forces the grease into the bearing by an extension lever which fits on the piston operating handle. The grease is prevented from escaping by the ball check in the rod cup filler neck which is shown in one of the above illustrations.

The use of Spee-d rod cup filler necks in conjunction with the Spee-d high-pressure grease gun, enables the applying of a pressure of 4,500 lb. per sq. in., if necessary, to force grease having a hard consistency to parts of the bearing requiring lubrication that cannot be lubricated properly and efficiently by ordinary methods. It is claimed that the time for filling rod cups can be reduced from 32 minutes to 5 minutes per locomotive with the use of this particular type of high pressure rod bearing grease gun.

Accident Investigations, January, February, March

THE Interstate Commerce Commission has issued its quarterly summary of accident investigations (No. 27)*, for the three months ending with March, 1926. This bulletin covers 10 collisions and eight derailments, as follows:

TRAIN ACCIDENTS INVESTIGATED—JANUARY, FEBRUARY AND MARCH, 1926.

1238.	Delaware, Lacka. & W.....	Binghamton, N. Y.....	Jan.	3	C
1239.	Chicago, R. I. & Pac.....	Wheatley, Ark.....	Jan.	5	C
1240.	New York Central.....	Schenectady, N. Y.....	Jan.	6	C
1241.	Florida East Coast.....	Frontenac, Fla.....	Jan.	10	C
1242.	Missouri Pacific.....	Blake, Kansas.....	Jan.	14	D
1243.	Delaware & Hudson.....	Hudson, Pa.....	Jan.	14	C
1244.	Maine Central.....	Marion, Me.....	Jan.	29	D
1245.	Cincinnati, N. O. & T. P.....	Burnside, Ky.....	Feb.	6	D
1246.	Baltimore & Ohio.....	Harvey, Del.....	Feb.	8	C
1247.	Erie.....	Stony Point, Pa.....	Feb.	14	C
1248.	Lehigh Valley.....	Mountain Top, Pa.....	Feb.	16	D
1249.	New York Central.....	Castorland, N. Y.....	Feb.	18	C
1250.	Illinois Central.....	Chicago, Ill.....	Mar.	3	C
1251.	Pennsylvania.....	Kladder, Pa.....	Mar.	3	D
1252.	Pennsylvania.....	Pierron, Ill.....	Mar.	13	D
1253.	Chesapeake & Ohio.....	Wurtland, Ky.....	Mar.	22	C
1254.	New York, Chicago & St. L.....	Hamburg, N. Y.....	Mar.	22	D
1255.	Southern.....	Elko, Ala.....	Mar.	29	D

Abstracts of Reports

Delaware, Lackawanna & Western, Binghamton, N. Y., January 3, 9:42 p. m.—Eastbound freight train Extra 2123, moving very slowly on Yard track 3, overran the fouling point where Track 3 converged with Track 2 and collided with another freight moving in the same direction on Track 2, also at low speed. The latter train was damaged so little that the trainmen did not notice that they had been hit, but the locomotive of the colliding train was overturned and a brakeman was killed. The engineer of Extra 2123 simply misjudged the distance; his only explanation being that his headlight had failed a short distance back. He had on the front of his engine only a common lantern. The switch light at the switch where the collision occurred was on the left side and not visible to the engineer of 2123; if there had been a marker on the engineer's side to indicate the location of the fouling point, "it is possible," says the report, "that the engineer may have seen the situation in season to bring his train to a stop."

Chicago, Rock Island & Pacific, Wheatley, Ark., January 5, 1:25 a. m.—A westbound freight train of the Cotton Belt road ran into the rear of a preceding freight of the Rock Island, wrecking the caboose and causing the death of an employee (not a trainman) inside of it; and two employees were injured. There was a dense fog at the time of this collision. The conductor and the flagman of the leading train are held at fault for not affording proper flag protection, and the engineer and conductor of the other train for disobeying a clearance card, received at Goodwin, directing them not to leave that station before 1:22 a. m. The conductor of the Cotton Belt train is held at fault for not applying the air brakes when he saw that his engineer was proceeding from Goodwin on the time of a passenger train.

New York Central, Schenectady, N. Y., January 6, 7:14 p. m.—Eastbound freight train RV-2, consisting of a locomotive and a caboose having been ordered to proceed some distance through the yard to push up hill a preceding train, YV-2, was run (over a curve of 3 degrees, 40 minutes), not under control, and collided with the train ahead. The caboose was wrecked and one brakeman killed. This collision occurred within yard

limits and was due to disregard of the rule to proceed only when the way was known to be clear. The line curved to the left and the fireman, looking over the tops of freight cars and reading a signal which stood beyond the standing train, called to the engineer "green," indicating all-clear; but, being within yard limits he should also have continued to maintain a lookout on his side of the engine; so that he as well as the engineer, is held at fault.

Florida East Coast, Frontenac, Fla., January 10.—Rear collision of northbound passenger trains, killing three trainmen and injuring 22 passengers and six employees. The flagman of the leading train had placed a fusee an insufficient distance to the rear, and the operator at City Point had neglected to maintain a ten minute interval between the trains. This collision was reported in the *Railway Age* of April 10, page 1023.

Missouri Pacific, Blake, Kan., January 14.—Eastbound passenger train No. 116 derailed at a loose switch because of a broken casting in the switch stand; engineer and fireman killed, five persons injured. This derailment was reported in the *Railway Age* of June 26, page 1987.

Delaware & Hudson, Hudson, Pa., January 14, 8:31 p. m.—Freight cars being pushed by a switching engine ran into the side of a freight train moving through a cross-over and one car was thrown against a signal tower, demolishing it. A gateman at a street crossing was killed and three other persons were injured. The fireman in charge of the locomotive pushing the cars had moved in response to a back up signal given by a brakeman of the freight train, intended for the freight and not for the switching engine. The brakeman on the leading car of the string of cars which was being switched is held at fault for not having stationed himself where he could have prevented this unauthorized movement. The movement of the cars was made contrary to the indication of the bottom arm of an interlocking signal; but because of this arm not being visible from locomotives moving as in this case, it has been the practice to make switching movements here wholly by hand motions; and the inspector recommends that the semaphore signal be changed so as to be more readily seen by the men whose movements it should govern.

Maine Central, Marion, Me., January 29, 3:34 p. m.—A westbound passenger train, moving at about 25 miles an hour, was derailed, on a curve of six degrees, where the grade is descending at about 1½ per cent. The locomotive and the first two cars did not run off the rails but the fourth and last car, a coach, was overturned and, with the car next ahead of it, was wrecked. Three passengers were killed and 14 passengers and two employees were injured. The cause of the derailment could not be determined. A relief train coming up behind the wreck, after dark, was, through error, run too close and was derailed; and this disturbance of the rails and ties prevented a successful examination of the track or roadway for the discovery of the cause of the first derailment. The report fills 12 pages, but no evidence is found of any fault in the locomotive; or of any in the cars except that some of the wheels under the derailed coach had been considerably worn. Shims put into the track where frost had made the surface uneven,

* Bulletin 25 was reported in *RAILWAY AGE* July 10, 1926; No. 26, August 14, 1926.

had lately been changed, some of them being 2 in. thick, but there was no evidence that the track was not fit for the speed at which the train was running.

Southern, Burnside, Ky., February 6.—A northbound extra freight was derailed by a spike or spikes placed on the outer rail at a curve of six degrees; locomotive overturned and eight cars wrecked. The fireman was killed and two employees were injured. The front truck of the engine ran about 3400 ft. on the ties (and this without the knowledge of the engineman) before the final derailment occurred, at a switch. The train was running at about 35 miles an hour, (faster than the rate of speed allowed) and the inspector believes that the consequences would have been less disastrous if the speed rule had been obeyed.

Baltimore & Ohio, Harvey, Del., February 8, 12:25 a. m.—Baltimore & Ohio locomotive 4602, moving backward, ran into the rear of a preceding freight, Reading Company extra 1642, wrecking the caboose of the leading train and killing the conductor and the flagman who were therein. The wreck caught fire and the caboose was burnt up, together with other parts of the wreck. The fault is laid at the door of the engineman of 4602, who had passed automatic signals set against him, and the conductor and flagman of the freight who had not properly protected their train, which was running at about eight miles an hour. The engineman of 4602 knew that he had past an automatic signal set against him and said that he also fully expected to encounter a train stalled on the up grade; but said that the glare from the headlight of an eastbound train impaired his vision. The inspector believes, however, that if both engineman and fireman had been keeping a proper lookout, the collision would not have occurred.

Eric, Stony Point, Pa., February 14, 5:30 a. m.—An eastbound freight, standing on a sidetrack, was run into at the rear by a following freight, No. 72, moving at about five miles an hour; and the caboose of the standing train was wrecked and destroyed by fire. The conductor, one brakeman and the flagman who were in this caboose were killed. A dense fog prevailed and, according to the report, it was possible to see only about the length of one car. Being on a sidetrack, the engineman of No. 72 was subject to the rule requiring that he keep his speed under control, but the report does not lay any of the blame on this engineman; it is all laid upon the men in charge of the standing train who, in view of the existing weather conditions, did not take proper precautions for the safety of their train. The dispatcher, acting through the station operator, tried to have a brakeman of the standing train go back to the rear and give notice to No. 72 that it would have to enter another track, farther to the left; but, according to the operator's testimony, the brakeman refused to comply with this request or instruction. The engineman of the standing train was in the station office, when the brakeman refused or neglected to comply with dispatcher's request, and he is held also at fault, he having, in the absence of the conductor, authority to see that the brakeman obeyed the dispatcher. The investigation threw no light on why the three men in the caboose failed to hear the approach of No. 72 in time to get out of the caboose. Some one of them must have been awake when they arrived at Stony Point, a few minutes before, as the following train found the main track switch (immediately behind this train) set straight.

Lehigh Valley, Mountain Top, Pa., February 16, 6:02 a. m.—Westbound express train No. 19, consisting of 13 baggage and express cars, one combination baggage car and coach and locomotive 2025 was derailed on a steep descending grade while running over a curve

of eight degrees at high speed, making a very bad wreck. The engineman was killed and five express messengers and one employee were injured. The inspector concludes that this derailment was due to excessive speed, for which the engineman is declared responsible. When the government inspectors reached the scene they were furnished with statements which had been made by members of the crew. These statements, remarkably uniform, would indicate that the train was handled perfectly as it descended the mountain; but when recalled, these employees gave answers that were not satisfactory, and their statements are held to have been worthless. The elevation of the curve was ample for 35 miles an hour, the rate prescribed, but it was held that this speed had been greatly exceeded.

New York Central, Castorland, N. Y., February 18.—Collision between eastbound passenger train No. 59 and a westbound extra freight; engineman and fireman of the passenger train killed, 24 persons injured. The passenger train was running in disregard of a meeting order and also had passed the train order signal at the station. This collision was reported in the *Railway Age* of April 17, page 417.

Illinois Central, Chicago, March 3, 12:30 a. m.—Southbound train No. 653, a suburban passenger, moving on track No. 5, ran past cautionary and stop signals set against it and through a crossover to track No. 4 where it collided with northbound Michigan Central train X-27 consisting of 11 express cars and one coach. The collision resulted in the death of one passenger, the fireman, the conductor and another employee on train 653 and the injury of six passengers and 10 employees. Each train was moving at the time of the collision at the estimated speed of about 15 miles an hour, one coach in train 653 being demolished. The engineman of 653 claimed that the route was lined from Track 5 across Track 4 to Track 1 and that he not only had a clear signal but saw that the rails were thus lined; but the inspector finds all the evidence to the contrary.

Pennsylvania, Kladder, Pa., March 3.—Northbound passenger train No. 6373 was derailed, on a curve of six degrees, while moving at about 30 miles an hour, and the locomotive was overturned. The engineman and one other person were killed and 10 persons were injured. Cinders were being unloaded from a car standing on a side track at the point of derailment and the inspector concludes that a piece of firebox arch brick, which was in a pile of cinders, had fouled the outer rail of the curve and caused the derailment.

Pennsylvania, Pierron, Ill., March 13.—Westbound passenger train No. 13 derailed at a sharp curve because of excessive speed; three employees killed, 10 persons injured. This derailment, due to the neglect of an engineman who failed to get a copy of a notice warning him to slacken speed at this curve, was reported in the *Railway Age* of May 22, page 1375.

Chesapeake & Ohio, Wurtland, Ky., March 22.—Westbound freight extra 2324, unexpectedly stopped at signal 5303, was run into at the rear by a following train, freight extra 1352, moving at low speed, and the caboose and one car were wrecked. These fell afoul of track No. 2, at the left; and westbound passenger train No. 17, running on track No. 2, struck the derailed cars at about 30 miles an hour. The locomotive of the passenger train was overturned and its engineman was killed; seven passengers and two other persons were injured. The inspector blames the conductor and the flagman of Extra 2324, and also the engineman of the following freight for not running under control, there being a dense fog at the time, and the presence of the train ahead being known. The conductor and flag-

man are censured for not having thrown off lighted fuses at proper intervals "as required by the rules." The block system is not in force on the short section of the track which was the scene of this collision, it having been put in service only a few months ago. The circular putting it in service prescribed a speed limit of 10 miles an hour. The inspector finds that both officers and employees had wrongfully considered interlocking signals, about three miles back, as having the function of block signals for the whole of this track; a situation "which should be remedied at the earliest possible moment; there is no room on any railroad for doubt as to the meaning of signal indications or for any differences of opinion as to prescribed rates of speed."

New York, Chicago & St. Louis, Hamburg, N. Y., March 22.—Eastbound passenger train No. 6, moving at about 30 miles an hour, was derailed as it entered a side track over a curve of seven degrees, 20 minutes, and the locomotive was overturned, causing death of the engineman. Because of a derailment a short time previous, all eastbound trains were moved through the siding; and this train was running too fast because the notice requiring reduction of speed had not been delivered to it. The section foreman who failed to provide proper flag protection is held primarily responsible; he had had two telephone conversations with a station telegrapher and assumed that the operator, through the dispatcher, had given sufficient notice to all trains, but the operator says that the final conversation related only to freight trains, not to all trains. Regardless of these arrangements, however, the section foreman should himself have provided protection by flag. The eastbound track and the siding, at this point, are owned by the Pennsylvania Railroad, and the track supervisor of that company is held in part responsible, he having not checked the section foreman's neglect to send out a flag. Again, the methods of promulgating slow orders are criticized; the dispatcher issued a general notice and was instructed to note on this notice the numbers of those trains which had already begun their trips and which therefore would have to be notified by train order; but he overlooked No. 6. Since the occurrence of this derailment, the practice has been rearranged so as to require the issuance of a train order to conductors who do not have access to a bulletin board. This line of road is operated under the manual block system, and the report has the usual paragraph, at the end, to the effect that an adequate automatic block system would probably have prevented the derailment; also that an adequate automatic train stop would have prevented it.

Southern, Elko, Ala., March 20.—Eastbound passenger train No. 36, moving at about 40 miles an hour, was derailed just after passing over a switch, and the express messenger, riding in the first car, was injured. This was a wooden car, the rest of the train being steel. This accident was investigated, in conjunction with representatives of the Alabama Public Service Commission, nineteen days after it happened, because of a complaint from a citizen of Huntsville sent to the Alabama commission. This complainant and others averred that the track was in bad condition, but the complaint seems not to have been diligently prosecuted and the I. C. C. investigator had no interview with him. The present report, signed by W. J. Patterson, assistant director, says that the cause was not ascertained. Various imperfections in the track are described but it is held that these were not of sufficient gravity to warrant the conclusion that the derailment was due to any defect in the track; and the officers of the road had been able to find no evidence of serious defect in the locomotive or the cars.

Inland Waterways Corporation Reports Both "Gain" and "Loss"

WASHINGTON, D. C.

AN enthusiastic report on the functioning of the Inland Waterways Corporation for 1925, submitted to the Secretary of War by Brigadier General T. Q. Ashburn, chairman and executive of the corporation, was made public on April 30. The corporation, he says, "has changed its role from that of an untried experiment, supported by congressional appropriation, and entered upon the vastly more pleasing one of an actual demonstration of the fact that water transportation, thoroughly co-ordinated with rail and highway transportation, is not only of vast public benefit, but is a paying investment for private capital, and offers the cheapest means of expanding our transportation facilities in co-operation with railroads to keep pace with the growing needs of our interior commerce." Also, he says, "the successful demonstration by this corporation upon the Mississippi during 1925 has given a tremendous impetus to the utilization of waterways by private contract and common carriers."

From tabular statements included in the report of the secretary-treasurer of the corporation, which are appended, it appears that with a net investment of \$11,548,278 the corporation had for the year total revenues of \$4,010,096, an operating loss of \$8,878.91, a net loss of \$34,519.39, and a "total loss" for the year of \$65,214.01. Total loss, according to the secretary-treasurer, "includes the net operating losses of the Mississippi-Warrior Service, loss on equipment retired, and expenses of conducting the Washington office of the corporation," nothing being included for return on investment, and although "the operations for the year brought new money into the business in the sum of \$330,680.95," the profit and loss statement shows a debit balance as of December 31, 1925, of \$389,562.93 as against \$324,348.92 at the beginning of the year. "So that," General Ashburn says, "the corporation shows a gain for the first year of its strictly business operation over the old, loose and arbitrary system before reorganization, of \$498,091.03 in its net income . . . made up as follows:

Mississippi Division—		
Changing a loss of.....	\$126,059.97	
to a profit of.....	268,855.28	
		\$394,915.25
Warrior Division—		
Reducing a loss of.....	\$406,550.45	
to a loss of.....	303,374.67	
		\$103,175.78
		\$498,091.03

In 1924, he says, the corporation "expended in actual operations \$179,333.90 more than its gross income. In 1925 the corporation expended in actual operations \$298,191.95 less than its gross income."

One of the interesting features of the report is the accounting nomenclature and arrangement used, which enables General Ashburn throughout the text of his report to use the word "profit" and to avoid almost entirely the use of the word "loss," although it appears occasionally in the tabular statements, being inserted in parenthesis after the word "income."

The \$298,191.95 which he refers to is described in the report of the secretary-treasurer as "income before charging depreciation," as the last item of a consolidated operating income account which shows total operating revenues, \$4,004,578, total operating expenses, \$4,013,457, "operating income (loss in parenthesis)" (\$878.91), and "net income (loss in parenthesis)" (\$34,519.39). Depreciation included in operating expenses stated as \$332,711.34.

There was \$5,518.18 of other income and \$31,158.66

deductions from gross income, including \$28.14 for tax accruals, \$27,865.13 for miscellaneous rents, and \$3,265.39 for interest on unfunded debt.

There is also an "analysis of income account" which states the total revenues (including other income) as \$4,010,096 and the total expenses as \$4,044,615, but does not subtract the expenses from the revenues until there has first been deducted "charges against profits which required no expenditure of funds," consisting of \$332,711.34 for depreciation, \$460.36 "loss" on two Ford sedans traded in at \$600 for new ones, and \$26,949.49 for "donations," which, according to another statement included \$7,200 for "personal injury claims," settled by the U. S. Compensation Commission and charged to operating expenses. Deducting "expenses requiring expenditures of funds" leaves \$325,601 of "funds obtained from operations of the current year," while the addition of \$5,079.15 "delayed income and miscellaneous items" makes up a total of \$330,680.95 of "funds obtained from operations."

The total tonnage transported in 1925 was 1,142,219 tons, as compared with 1,071,848 in 1924 and 672,111 in 1921, according to the report. The Mississippi Division had an operating income of \$277,825, while the Warrior Division had an operating loss of \$286,704.

"During the first seven months of the year," the report says "the Mississippi Division hauled 619,191 tons of freight and made a net profit, after charging depreciation, of \$396,885.17," but the low stage of the river in August and September interrupted the service, "thereby materially reducing the profits of the year."

General Ashburn says in part:

In the creation of the Inland Waterways Corporation, Congress did bring into being a government agency capable of conducting its affairs on a strictly business basis.

The basic idea underlying the creation of the corporation was that the time had arrived when there should be created some means of demonstrating that Congress, which had, up to 1923, appropriated nearly three-quarters of a billion dollars to create navigable streams and canals, in the hope that common water carriage would voluntarily spring into existence, and thereby furnish the public the cheaper transportation inherent in the utilization of waterways, had not been theorizing, but had been proceeding along the lines of sound economic policy.

If such an agency, backed by the United States, functioning as a private transportation agency, conducted along strictly business lines, could not successfully demonstrate, then it would become futile to continue to spend vast sums in a forlorn hope that water transportation would revive of its own volition.

Common water carriers of importance on our navigable streams had virtually ceased to function, and the experience gained by the Inland and Coastwise Waterways Service, the predecessor of this corporation, indicated that such common carriage would never be rejuvenated by private capital.

The law as passed gives the corporation wider powers than exist in any governmental corporation ever created, and gives the Secretary of War, its governor, wider powers than could possibly be exercised by any head of a private corporation controlled by a board of directors.

The corporation, through the employment of such means, created public confidence in its businesslike administration, its stability and usefulness; and shippers who, assured of permanent and dependable service, took advantage of our facilities, became ardent supporters and boosters of the enterprise, and shipments of every kind, except grain, increased so that the corporation shows a gain for the first year of its strictly businesslike operation over the old, loose and arbitrary system before reorganization of \$498,091.03 in its net income; and this despite the fact that during the calendar year 1925 its equipment on the Mississippi was only 60 per cent of the 1924 equipment, 40 per cent being in litigation and used by another company, and despite the fact that, due to economic conditions, a limited amount of grain was exported by the United States during the latter part of 1925.

During the year there were slowly but surely worked out difficult problems relating to the Warrior Division, the solution of which offers definite assurance that within the next twelve months that section will be self-supporting.

These problems related to the acquisition of new and modern boats; the elimination of unfit equipment; the development of traffic of a higher-paying basis; the solution of vexing terminal situations; successful negotiations leading to our entry into Bir-

mingham proper and the elimination of the absorption of a prohibitive part of our revenue by the Ensley Southern Railroad; the establishment of friendly relations with the Southern Railroad and the Louisville & Nashville; the establishment of Mobile as a bunkering port for steamers, etc. A very encouraging prospect lies in the reopening of the coal mines on the banks, which were closed most of 1925. With the coal moving at the rate of 100,000 tons in 1926, large and new movements of cast-iron pipe from Holt, Ala.; large and new movement of cement from Spocari, Ala.; the development of packet freight by means of our new interchange relations through Birmingham, a division of rates whereby the Warrior Terminal Company will receive 60 cents a ton for every ton of freight interchanged over its lines, there is every reason to look forward confidently to a steady and rapid improvement leading to the Warrior Division becoming self-sustaining.

Vastly new rate territory was opened up to joint rail-water rates; peculiarly gratifying being the fair divisional rates between the corporation and the B. & O. and Wabash, to the East and West; the M. & St. L., to the North; and the Rock Island to the West. Every effort has been made by us to co-operate with the railroads, and there is apparently a marked tendency on the part of prominent railway officials to meet our proposals in a reasonable manner. Perhaps much good has been done by the constant reiteration of our policy to do nothing to harm the railways, our public recognition of the fact that they must be treated as fairly as the waterways, and our public statements that while railways can get along very well without waterways, the latter cannot profitably operate as common carriers without co-operation with the railroads. The matter of determining the proper division of accruing revenue from joint rail-water hauls is very difficult. There is room for honest difference of opinion, and progress towards harmonious concord is necessarily slow. We have, however, in recent negotiations adopted a plan which seems reasonable and attractive to both parties. A tentative division of revenue between the rail and water carrier accruing from a joint haul is adopted and put into practice for a period varying from six months to a year. Each party keeps a fair record of freight interchanged, and the accrued revenue. If at the end of the allotted period each party to the contract is satisfied with the results, the divisional basis becomes permanent by mutual agreement. If, however, the results show that the accepted basis of division works out unfairly to one or the other, the matter is subject to adjustment by mutual consent. If the parties cannot reach an amicable adjustment by previous agreement, the matter is submitted informally to the Interstate Commerce Commission for adjustment on the merits of the case as determined by the records, and each agrees to abide by the decision of the commission.

In this manner it is hoped that long drawn out litigation between a railroad and the corporation will be a thing of the past. While it cannot be said that all our rate adjustments covering the service of the Mississippi-Warrior Service have been completed, a very definite framework exists on which to complete the edifice.

The large steel corporations located on the Ohio have built and are building their own fleets. There are two distinct operations building gradually but firmly upon the Ohio as common carriers; private capital has been invested upon the upper Mississippi in a common carrier to be operated by this corporation. Missouri river interests have money available for the establishment of lines there. A corporation is being formed to finance the Sunce System, which may revolutionize water carriage upon shallow streams. Every community through which a possible navigable stream flows has been aroused to its potential value; and every railroad which has co-operated with the corporation has profited financially thereby. Great savings have been made by the public, and yet the matter of the proper utilization of our waterways is in its infancy.



Bar Harbor—New York Express on the New Haven at Stamford, Conn.

MOTOR TRANSPORT SECTION



*into the heart of NEW YORK
over the Baltimore & Ohio*

*Published in the fourth issue
of each month and devoted to
the co-ordination of railway
and highway service*



NEW STATION FACILITIES NEW YORK CITY

Effective August 29th, the Baltimore and Ohio established two stations in the heart of New York City—in the Pershing Square Building at 42nd Street and Park Avenue, opposite the Grand Central Terminal, and in the Waldorf-Astoria Hotel at Fifth Avenue and 33rd-34th Streets—in the heart of the business, hotel, shopping and theatre districts, convenient to every line.

Baltimore & Ohio Inaugurates Bus Service in New York and Newark

*Station facilities at several points in each city served by
motor coaches direct to train side*

AN innovation in railroad passenger service will be made this Sunday, August 29, when the Baltimore & Ohio inaugurates motor coach service between its Jersey City terminal and the heart of New York, and between Newark, N. J., and Elizabeth. This change is due to the termination of the contract between the Baltimore & Ohio and the Pennsylvania for the use of the latter's passenger terminal facilities in the metropolitan area for B. & O. trains. The termination of this contract necessitated the seeking of other terminal facilities by the Baltimore & Ohio, and it consequently had recourse to the Jersey City terminal of the Central of New Jersey, which was the B. & O.'s terminus prior to the war.

During its tenancy of the Pennsylvania station, however, the Baltimore & Ohio has built up a clientele in the mid-town section of New York, which it desired to continue serving. To do so meant the provision of other

facilities in addition to the Jersey Central ferries at Liberty street and Twenty-third street. Several possible plans were considered and the provision of the motor coach service was hit upon—not only as a substitute service to take the place of the lack of an actual railroad terminal in the heart of the city, but as an additional facility for passengers having intrinsic merits all its own.

The Motor Coach Routes

The motor coaches will have their initial terminal at Pershing square, New York, adjacent to Grand Central Terminal—which, it is believed, will be convenient for passengers having to change trains at New York. Thence the motor coaches will proceed to the Jersey City terminal of the Central of New Jersey by two routes, as follows:

1. Via Park avenue to the Vanderbilt hotel; via



The B. & O. Yellow Coach for New York and Newark Terminal Service

Fourth avenue to Union square; via Lafayette street to the Consolidated Ticket Office at Broadway and Chambers street; thence to the Liberty street ferry and by that to the Jersey City terminal.

2. Via Park avenue to the Vanderbilt hotel; via Thirty-third street to the Waldorf-Astoria hotel; via the

Waldorf-Astoria route will go through Thirty-fourth street instead of Thirty-third.

Station Facilities at Many Points

Waiting room, ticket-selling, baggage-checking and other regular accommodations will be provided at the

NEW YORK, PHILADELPHIA, BALTIMORE AND WASHINGTON

Miles	STATIONS—WESTWARD	5:11 Daily	15 Daily	25 Daily	5:05 Daily	6:21 Daily	7:41 Daily	9 Daily	3 Daily	17 Daily
New York—23rd St. Motor Coach Route										
	Lv Pershing Square Station (42nd Street near Park Avenue).....	9:18	11:08	AM	8:30	10:00	12:05	12:55	5:10	PM
	Lv Vanderbilt Hotel (4th Avenue and 34th Street).....	9:23	11:13		8:35	10:05	12:10	12:58	5:15	
	Lv Waldorf-Astoria Station (8th Avenue and 33rd-34th Streets).....	9:27	11:17	Note	8:39	10:09	12:14	1:02	5:19	
	Lv McAlpin Hotel (Broadway and 33rd-34th Street).....	9:31	11:21		8:43	10:13	12:18	1:06	5:23	
	Lv Pennsylvania Hotel (7th Avenue and 33rd Street).....	9:35	11:25		8:47	10:17	12:22	1:10	5:27	
	Lv West 23rd Street Station.....	9:39	11:29		8:51	10:21	12:26	1:14	5:31	
New York—Liberty St. Motor Coach Route										
	Lv Pershing Square Station (42nd Street near Park Avenue).....	11:25		7:33	8:38	10:08	12:13	1:03	5:25	
	Lv Vanderbilt Hotel (4th Avenue and 34th Street).....	11:30		7:38	8:43	10:13	12:18	1:08	5:30	
	Lv Union Square—14th Street.....	11:37		7:47	8:52	10:22	12:27	1:17	5:37	
	Lv Consolidated Ticket Office—67 Chambers Street.....	11:39		8:02	9:07	10:37	12:42	1:22	5:39	
	Lv Liberty Street Station.....	12:00		8:15	9:20	10:50	12:55	1:45	5:47	
0.0	Lv Jersey City (Jersey Central Station).....	1:12		8:27	9:32	11:02	1:07	1:57	5:59	
Newark, N. J.—Jer. Cent. Sta.—Motor Coach Connection										
	Lv Public Service Terminal Building.....	5		8:35	9:20	10:50	12:55	1:45	6:05	
	Lv Robert Treat Hotel.....			8:37	9:22	10:52	12:57	1:47	6:07	
11.5	Lv Elizabeth.....	a 1:30		a 8:45	a 9:50	a 11:20	a 1:25	a 2:15	a 6:37	
23.0	Lv Plainfield.....			e 9:00	c 10:05	b 11:35	d 1:30	b 2:30	e 6:52	
0.0	Lv Trenton.....			9:25		12:02		n 2:56		
52.5	Lv Trenton Junction.....			9:39		12:15		3:09		
83.1	Lv Wayne Junction, Pa.....	3:16		7:45	10:13	11:10	12:51	3:44	6:39	
90.9	Ar Philadelphia, Pa. (Chestnut St. Station).....	3:34		8:00	10:30	11:34	1:05	4:00	6:55	8:05
90.9	Ar Philadelphia, Pa. (Chestnut St. Station).....	3:44		8:10	10:40	11:44	1:15	4:10	7:05	8:15
102.8	Lv Chester, Pa.....			8:20	10:51	11:57	1:25	4:20	7:15	8:25
115.9	Lv Wilmington, Del.....	4:27		8:37	11:09	12:15	1:47	4:41	7:37	8:46
128.1	Lv Newark, Del.....	4:46		8:54	11:25	12:31	2:03	4:00		8:49
154.2	Ar Aberdeen, Md.....	10:28		9:35	12:05	1:10	3:19	5:08	10:12	
185.3	Ar Baltimore, Md. (Mt. Royal Station).....	6:20		10:05	12:35	1:40	3:49	5:38	10:24	
186.8	Ar Baltimore, Md. (Camden Station).....	6:25		10:10	12:40	1:45	3:54	5:43	10:29	
186.8	Lv Baltimore, Md. (Camden Station).....	6:30		10:15	12:45	1:50	4:00	5:49	10:34	
223.6	Ar Washington, D. C. (Union Station).....	7:25		11:00	1:30	2:40	4:10	6:00	11:30	11:53

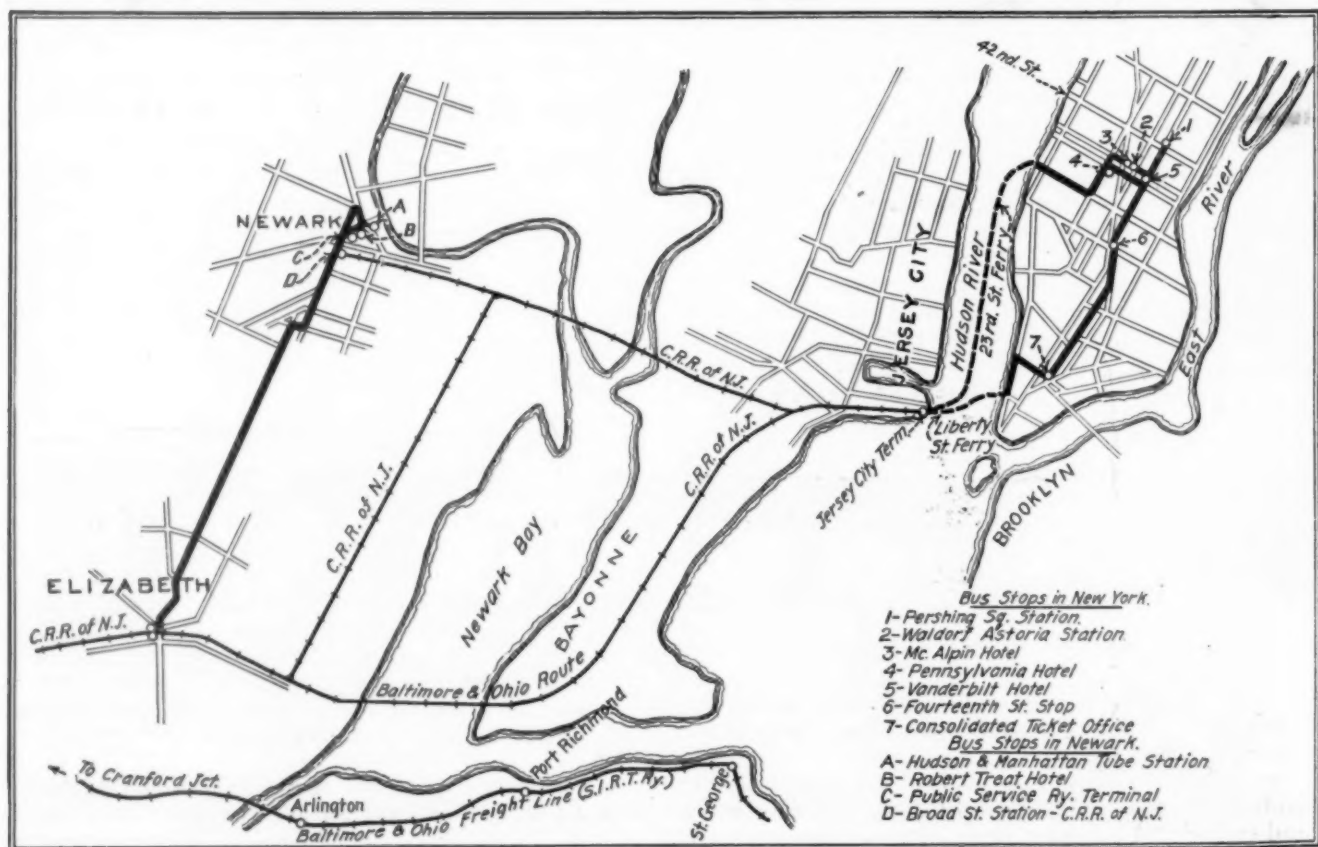
A Specimen Page from the New Public Timetable, Showing Bus Schedules

same street to the McAlpin and Pennsylvania hotels; thence to the Twenty-third street ferry and to the Jersey City terminal.

Inbound trains will be met at the Jersey City terminal and passengers will be conveyed by way of the same routes to Pershing square. Inbound the coaches on the

Pershing square station and at the Waldorf-Astoria. Passengers, however, will be accepted at any of the other stops and ticketing and baggage checking will be taken care of en route.

In Newark the motor coaches will make stops at the Hudson & Manhattan tube station at Park place, the



The Baltimore & Ohio's Bus Lines in New York and Newark with Railroad and Ferry Connections

Public Service Railway Terminal, the Robert Treat hotel and the Central of New Jersey station, at which latter place all station facilities will be provided. The buses will run to Elizabeth via Broad street and Frelinghuysen

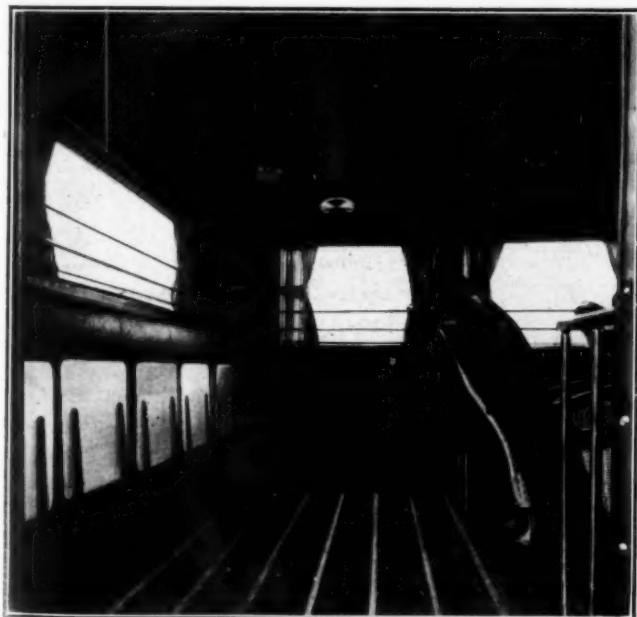


Luggage Racks, Not Seats, Are Placed Over Rear Wheels

avenue to the Central of New Jersey station, Elizabeth, where train connections will be made.

Buses Run Direct to Train Side

The connections between buses and trains at Jersey City will be facilitated by special platforms which have been designed to serve Baltimore & Ohio trains. These provide a run-way and turn-table for the buses in the train shed, enabling buses to pull up directly alongside



Space for Luggage Provided in Rear of Coach

the trains, avoiding a long walk through the station and concourse. Trains, of course, will always be held for their bus connections.

Special provision has been made on the ferry-boats for handling the buses. They will be given a position at the head-end of the vehicular lanes, so that passengers will not be constrained to the dark quarters amidships.

There will be no extra charge for the use of the train

connection coaches. Purchasers of tickets over the Baltimore & Ohio from or to New York will pay nothing more than the regular railroad fare, the motor coach connection being taken care of by a special card for which no charge will be made.

The buses to be used in this service, both in New York and Newark, were purchased by the Baltimore & Ohio from the Yellow Truck & Coach Manufacturing Company, Chicago, Type Y chassis. The coaches were specially built for the Baltimore & Ohio for this particular purpose. They are of the most modern design, with individual seats for twenty-three passengers. A separate section in the rear of each coach will take care of



Front Cover of 8 in. by 10½ in. 6-Page Circular Printed in Color, Distributed by the B. & O. to Advertise Its New Service

hand baggage, with additional space on the top for use if necessary. Each coach will be operated by a chauffeur expert in traffic, and there will be an additional uniformed attendant to look after the safety, comfort and convenience of passengers at all times. There will always be a sufficient number of coaches ready for each train connection in both directions.

Actual operation of the coaches has been entrusted under contract in New York to the Fifth Avenue Coach Company and in Newark to the Public Service Corporation. Both of these companies are experienced operators, doing a general motor bus transportation business in the two cities, and reserve supplies of buses operated by them enable the railroad to assure ample accommodations for all passengers, no matter what the demands of traffic.

Normally, however, the fleets of buses owned by the railroad will be sufficient for all demands. These buses, as stated above, have parlor seats for 23 passengers, in addition to the driver and attendant. Baggage space inside and outside is provided. There are no seats over

the rear wheels, these spaces having been utilized for luggage space, thereby assuring each passenger a comfortable seat.

The Baltimore & Ohio motor coaches will have bodies painted Pullman green below the windows, with a lighter green above—which lighter green will be used on the top of the hood and the wheels. There is a band of royal blue around the body on which the lettering is done

savings will offset the time used for the ferry trip and part of the run through the city streets. The time consumed in the whole trip from Washington to Forty-second street will not, therefore, be greater than the time used now in making the same trip by the Baltimore & Ohio trains and taxi-cab or subway. Over portions of the motor coach route the time to Washington will be appreciably shorter than at present.

Another change to be made over past practice will be permitting Pullman passengers coming in to New York to remain in the cars until 8 a. m. The road's overnight train from Washington will arrive in Jersey City at 6:40 a. m., standard time. Connecting motor coaches will be run over both New York routes immediately upon arrival and again after 8 a. m. The entire trip from Pershing square to Jersey City is scheduled at about 40 minutes, the Newark-Elizabeth run about the same.

Announcing an outstanding improvement in travel convenience

Beginning August 19th

MOTOR COACH SERVICE

will be established by the Baltimore & Ohio from two new stations in the "Heart of New York" direct to trainside at Jersey City

Motor Coach Stops
23rd Street, Waldorf Astoria Station, Pershing Square Station, Jersey City Terminal.

On this above map a fleet of motor coaches will be placed in operation for the exclusive use of Baltimore & Ohio passengers, leaving or entering New York City.

Coach stations will be located in the Pershing Square Building on 42nd Street, just east of Park Avenue and opposite the Grand Central Terminal. Also in the Waldorf-Astoria Hotel, on the 33rd Street side, corner of Astor Court.

At these stations there will be ticket offices, baggage checking facilities, women's rest rooms and porter service.

Regular schedules, over fixed routes, upriver and downriver, will be maintained between coach stations and the Jersey City main terminal. See details on the map.

This service will provide the traveling public with a personal convenience heretofore not available.

It means that when you step aboard the motor coach you have "made your train." Your coach takes you direct to the trainside—safe, comfortably and quickly.

On upon returning to New York, you step from your train at the Jersey City Terminal into the waiting motor coach which takes you direct to the heart of New York's activities, with choice of two routes.

Each coach will be in charge of a chauffeur skilled in traffic and a uniformed attendant trained to Baltimore & Ohio standards of courtesy and service.

There will be no additional charge for this extra service.

Baltimore & Ohio
THE LINE OF THE CAPITAL LIMITED—NATIONAL LIMITED

Advertisements Such as This Have Appeared in Many Newspapers in B. & O. Territory

in gold. Attractive uniforms are provided for the chauffeurs and attendants.

Coincident with the inauguration of train service to the Jersey City terminal, the railroad will run its own locomotives through for the entire trip from Washington to Jersey City. Heretofore a change to Reading locomotives has been made at Philadelphia and another change to Pennsylvania electric power at Manhattan Transfer. The avoiding of these engine changes, together with other slight schedule changes made possible here and there, will enable trains to make the run to the Jersey City terminal at from 10 to 25 minutes under the schedules maintained into Pennsylvania Station. These

Motor Transport Conference in Providence

THE Railroad Motor Transport Conference met in Providence, R. I., on August 26, 27 and 28. Some 60 railroad officers interested in problems of highway motor transport either from the standpoint of actual operators or as students of the problem were in attendance. Plans for this meeting grew out of a previous meeting of these officers in Atlantic City on June 11. General arrangements were in charge of a committee of which A. P. Russell, vice-president, New York, New Haven & Hartford, was chairman; R. H. Newcomb, assistant to vice-president, New York, New Haven & Hartford, was vice-chairman; and F. J. Scarr, supervisor of motor service, Pennsylvania, was secretary. The program was as follows:

THURSDAY, AUGUST 26

- 9:00 a. m. Hotel Biltmore, Providence, registration and identification.
- 10:00 a. m. Conference called to order by Chairman A. P. Russell; report of committee on permanent organization, and action on that report.
- Balance of the morning devoted to discussions of:
 - 1—The Theory of Railroad Highway Operation, Vice-president A. P. Russell, N. Y. N. H. & H.
 - 2—Method of Railroad Passenger Survey; its cause, purpose and results; F. C. Coley, passenger traffic mgr., N. Y. N. H. & H.
 - 3—Method of Highway Traffic Survey, Harold Price, traffic mgr., New England Transportation Co.
- 1:00 p. m. Lunch.
- 2:30 p. m. Called to order by chairman.
 - 1—The Highway Operating Problem, F. S. Hobbs, mgr., N. E. T. Co.
 - 2—The Maintenance Problem, F. J. Swentzel, mech. supt., N. E. T. Co.
 - 3—Accounting Problems, R. H. Palmer, auditor, N. E. T. Co.
- 7:00 p. m. Dinner.
- 8:30 p. m. The Legal Situation as to regulation locally and nationally, including a discussion of the principle of direct highway operation by railroads as opposed to operation through a subsidiary, E. J. Phillips, vice-pres., N. E. T. Co.

FRIDAY, AUGUST 27

- 8:30 a. m. Meet at superintendent's office, N. E. T. Co. Spend morning in study of actual operation, including garaging and accounting features.
- 11:30 a. m. Lunch.
- 12:15 p. m. Drive to Boston arriving at 2 p. m., to view motor truck operations of the Boston & Maine Transportation Company, and opportunity to inspect its bus equipment.
- 7:00 p. m. Dinner, Copley Plaza Hotel, Boston.
- 8:30 p. m. Evening devoted to informal discussion of general problems and of the operations inspected during the day.

SATURDAY, AUGUST 28

- Day at disposal of delegates for such independent investigation as they see fit to make—N. E. T.—New Haven—Boston & Maine men at their disposal.

Attendance at the meeting was restricted to duly accredited railroad officers. A report of such parts of the proceedings as are authorized for publication together with plans adopted for forming a permanent organization will appear in a subsequent issue of the *Railway Age*.

Motor Transport Investigation at Los Angeles

Bus and truck service in California described—Regulation favored by established operators

THE extensive system of highway freight and passenger carrier lives in California and the effect on them of existing regulatory measures were described by witnesses representing bus and truck companies and the hearing in the Interstate Commerce Commissioner's motor transport investigation held in Los Angeles, Calif., beginning August 17. Examiner Leo J. Flynn presided.

For the most part, the hearing was given over to the presentation of the statements of the highway carriers now operating in California. Representatives of the California Electric Railway Association also appeared.

Railroads Rely on Questionnaire Answers

The steam railways made practically no presentation, H. W. Hobbs, attorney for the Southern Pacific Company, acting for the transcontinental lines, repeating the statement made in San Francisco, that the case of the railroads had been so fully made in the questionnaires which they had filled out that no exhibits or oral testimony would be given. It was announced that the Union Pacific will put in some testimony at the Kansas City hearing.

Unregulated Bus Operation

Captain James Gunn, chief inspector of the motor vehicle department, Board of Public Utilities, Los Angeles, testified regarding unregulated bus operation.

"The operation of unregistered motor vehicles was very great three years ago," he said, "then it fell off, but recently such operation has revived again, because of recent court decisions loosening the restrictions which the state railroad commission had placed on such operation."

"Unregulated interstate motor carriage is a menace to the public on the highways. It is a service solely for the benefit of the carrier. The matter of the fare is the all-important point. The fares charged are much less than those of the railroads."

Well Established Companies Favor Regulation

"The operations as carried on by the interstate carrier are identical in character with intrastate hauling, except for the existence of a political division line between states. Some of these unregulated carriers want regulation; some do not, and are trying in every way to avoid it. Generally speaking, the big and well established transportation companies doing an interstate business are in favor of regulation."

"Regulation may be in conflict with private interest, but the operators would be better off if strictly supervised and regulated. The great need for regulation is now and the Interstate Commerce Commission is the body to do it. We speak for no interest except the interest of the public at large."

"Fares on bus lines are very much lower than the rail lines. A comparison of some of the advertised bus rates with rail rates show: Bus to Salt Lake, \$12.50; rail, \$42.33. In each instance this is for transportation

only. To Denver, the rail rate is \$49.29; the advertised bus rate \$25.00; to Kansas City, rail rate, \$63.39; bus \$37.50.

"One form of ticket which I have examined shows that, in consideration of the sum paid for an interstate trip, the owner agrees to transport the passenger and fifty pounds of hand baggage; the passenger agrees to accept the ticket for all claims whatsoever which he has now, or may have later, against the agent who negotiates the transaction."

Many Independents Are Only Agents

"Many of the so-called independent operators are in reality only the agents of the owners of cars. Within the past few days a number of interstate operators have applied for a permit to operate under city ordinance out of Los Angeles."

"The ordinance covers all intrastate operations, and a license requires a bond. We have forced these men in applying by picking them up on the streets for engaging in interurban transportation without a permit."

"The usual practice of irresponsible or otherwise carriers in interstate traffic is to take passengers out of Los Angeles in one car and reload them into another outside the city limits. In fact, all do this except the United States, Motor Transit and the Pickwick. The only mover of interurban freight to apply for a license is the Phoenix Fast Freight, operating between Los Angeles and Phoenix."

Insurance Requirements

"We demand of all certified carriers that they furnish \$5,000 insurance on each car for injury or death of one person in an accident, and \$10,000 insurance for two or more persons injured or killed in an accident. Also, we require \$1,000 property damage insurance on each vehicle. These requirements are the exception rather than the rule in their application to unlicensed carriers."

Care in Examining Drivers

"Certified carrier drivers must pass a physical and professional examination. We fingerprint the freight drivers. All these requirements are for the benefit of the public. The public would be benefited by more thorough regulation of intrastate operators as well as the regulation of interstate carriers, although the intrastate carriers are in good shape today."

F. D. Howell, of the Motor Carriers Association, presented testimony on the motor services in California, including the distribution of the service, railway competition and regulation. He said in part:

"Conditions within the state of California prior to regulation were chaotic. The services of motors as public passenger carriers started almost overnight and reached appalling numbers before any public body could obtain control. Anyone who had a car or who could make a down payment on one could go into jitney or interurban service at will; charge what he pleased; offer

no protection to the public, and if anything went wrong with his car abandon it and his passengers.

"The city of Los Angeles tried to bring order and safety out of these services, first, by permitting the Police Department to issue permits, and when this failed, turning the whole matter over to the Board of Public Utilities, who ceased to give permits on demand, but required permits to be issued on a proving of necessity, inspection of equipment, liability and property damage insurance, fixed fares and schedules, bonds also for all agencies selling tickets for these lines.

"In this manner, the City of Los Angeles rid the industry in this territory, both interurban and local, of those not fit to be in such public service, and the results thus accomplished spread throughout the state, when state laws were passed in 1917, placing jurisdiction in the hands of the California Railroad Commission.

Regulation Eradicates the Unreliable

"The results of regulation have been to practically eradicate unreliable operators in common carrier service, and to induce large investment in plant and equipment and facilities for this service.

"The same conditions now exist in unregulated interstate service, that existed in intrastate service, prior to regulation, and the needs are just as great for such regulation.

"Through the developments in intrastate service, and the knowledge that the public now has, the detail regulations that were required in the early days is rendered unnecessary, that is to say, regulation, whether inter- or intra-state, should be along broad lines, and be rather aimed at the sufficiency of the services to be rendered than at the detail of such service, should include every carrier, whether public or private, common or contract, who makes a charge for the service, the character of the regulation to be adjusted to the needs of the public in the separate classes of carriers, with due regard given to the constitutional right of private contract, if any.

Serving Districts Not Touched by Rail

"In the northern counties of the state and in the mountain districts for the full length of the state, the motor carrier serves territory not served by rail, and these lines act as feeders to rail lines and are not directly competitive, except where they connect with other motor lines that do parallel rail lines.

"This same condition applies all down the mountain range to the Mexican border—motor lines from the valley into the mountains to elevations of 8,000 and 10,000 feet above sea level, to settlements, national parks and resorts. The rail lines co-operate with some of these lines, where they originate on the rail line and confine themselves to the non-competitive mountain haul.

Competitive Lines

"Many motor lines are directly competitive with rails practically throughout their entire length, serving the same communities, but giving much more frequent service, as for instance, between:

Los Angeles and San Diego via the Coast Route.

Los Angeles and San Francisco via the Coast Route.

Los Angeles and San Francisco via San Joaquin Valley.

"Part of this route between Los Angeles and Bakersfield is via the Ridge Route, which is not parallel with any rail lines, but an alternate route via Mojave and Tehachapi is directly so.

"Motor transportation in the common carrier field has steadily advanced. It must, therefore, be fundamentally right or it would not have made such steady

growth in ten years, but would have faded out instead, as did the 'jitneys.' There would appear to be many reasons for this, of which the following are at least a few:

1. All other things being, equal, the public will patronize that transportation that is most accessible to their hand.

2. The public in its wide ownership of private cars has developed a liking for motor travel on the highways.

3. Motor transportation can go where rail lines cannot go on account of grades and alignment.

4. They further localize interurban electric railway service, as the latter did the steam railway service.

5. The service is mobile, can be expanded and contracted almost at will.

6. It gives every passenger a seat.

7. Permits small stores and shop-keepers in outlying districts to carry less stock on their shelves.

8. Permits almost immediate installation of service, when and where needed.

9. Has reduced losses sustained by shippers on many perishable commodities.

"There has been a good deal said about motor service reaching its highest usefulness as feeder lines to rail service, but as a matter of fact, there is little that the motor car can do as a feeder. Its principal use, even as developed by the rail carriers themselves, is as a substitute for some kinds of rail service, rather than as a feeder.

250 Persons Per Mile of Route

Will Support a Bus Line

"As to the economies of motor transportation, both passenger and freight, it is variously estimated that an electric line requires about 1,500 population per mile of track for its support, while a motor bus line requires only 250 population. These figures, however, must be qualified in any analyses of available traffic, by taking into consideration any competition that may exist, and a further investigation as to the relation of the two communities to be connected with one another. For freight the question is one wholly of time, rates being fairly equal. Time and the rehandling element have put all the milk and fresh meat on trucks and have taken certain dairy districts, heretofore dependent on steam branch lines, out of the red into profit.

Private Automobiles Affect Rail Lines

"The effect of the privately owned automobiles is not as adverse to stage lines as it is to electric and steam lines. This from the fact that the automobile has given the public a taste for highway travel, as opposed to rail, and when not using their own machines, the preference is for the stage.

"Many who own machines are found on stages. They say parking in cities is expensive under cover and free parking hard to find and time limits too short, so that in the business trips to the city or on other business trips they have their own car at home for the family to use and themselves ride the stage.

"The wide ownership of motor vehicles, both freight and passenger, probably has had a very unfortunate effect on rail services. Commercial houses now own vast fleets of trucks, delivering their own commodities to outlying districts, 100, 200 and 300 miles away, while there is said to be a passenger automobile for every three people in the state.

"In a report submitted by a sub-committee to the Committee of Twenty One (a committee organized at the instance of the California Railroad Commission to consider regulatory laws and motor carrier services) and by this committee submitted to all outside interested

parties for later discussion, the following findings have been made, which are just as pertinent in considering interstate as intrastate regulation, and are, therefore, included as a summary and conclusion of this report:

a. That all carriers (for compensation) should be regulated as to rates and service.

b. That regulation should vary with the service, so that each class should be regulated only insofar as protection to the public is required.

c. That all services be divided into two general classes, and that the first (those operating regularly) be given preference and protection over all others.

d. That the final regulating bill be specific as to the services to be regulated, but general as to regulation, empowering the regulatory body to make such regulations from time to time for which the need may develop, for the protection of the services themselves and of the public."

Bus Operator Testifies

Chas. F. Wren, president and general manager of Pickwick Stages System, which also operates the West Coast Stage Lines, of Oregon, United Stages, Inc., Pickwick Stages of Arizona, and the Union Auto Transportation Company, testified as to the passenger service of his company. He said in part:

"The Pickwick Stages System in the main might be termed 'long haul' carriers, as applied to stage operation, the average car operating over a division ranging from 130 to 500 miles in length and the operation covering approximately 5,000 miles of franchises. There is no place on the entire system in which this company is in competition with any electric interurban railroad.

"While this system is in competition with steam railroads as to terminal points, yet they are not in competition by any means over the entire route, for the reason that in many instances the route traversed by this system and those traversed by the railroads are widely divergent at intermediate points and furthermore, in many instances, the railroads serve only certain intermediate points on excess fare trains, where they might otherwise be in competition with stage service maintained by this system.

"This system is probably the largest interstate operator in the West; is now operating in five states of California, Oregon, Arizona, New Mexico and Texas, and hauling approximately 200 interstate passengers per day. This business was started by a stage line 35 miles long between San Diego and Escondido, Calif., in 1912, and has grown constantly, until today by extensions and consolidations it represents a transportation system covering approximately 5,000 miles of franchise operations involving a necessary investment in plant and equipment alone, of approximately \$4,000,000.

"The accompanying table shows certain statistics covering the operations of this system in California, Arizona, Oregon, New Mexico and Texas.

MILEAGE AND PASSENGER STATISTICS, PICKWICK STAGES SYSTEM, JUNE, 1926

Total number franchise miles operated	4,383
Total number car miles operated	936,507
Total number passengers carried	120,455
Total number interstate passengers carried	2,983
Gross revenue	\$278,632.00
Gross revenue per mile .....	.297

"Equipment is signed, built and equipped in our own factory and shops. (Here pictures of some equipment were shown.) The first pictures are those of the parlor buffet type, inaugurating a service we believe never before attempted by any motor operator. This parlor car is 'de luxe' equipment in every respect, operating daily between San Francisco and Los Angeles, making only a limited number of stops. An extra fare of \$3.00

is assessed for this service. The cars are equipped with lavatories, toilets, and buffet kitchen, and a porter is in attendance at all times, serving buffet lunches, either hot or cold, at a reasonable charge. The second type is a 33-passenger inter-city type stage with 66 Pierce Arrow motor, as is also the parlor buffet type.

"This equipment is all built and constructed in our own plant specially designed to meet our needs and the needs of the traveling public patronizing our service, from the tests furnished by an extensive laboratory of operations. All this equipment is equipped with Pierce Arrow Motors except in some few instances where other types of equipment have been taken over in the numerous consolidations effected by this company.

Long Bus Route Regular

"It may be of interest to know the extent of long distance patronage of this company. Over 500 passengers are daily transported between San Diego and Los Angeles, a distance of 135 miles. Approximately 150 passengers per day are transported between Los Angeles and San Francisco, a distance of 455 miles covered in from 14½ to 16½ hours of elapsed time, a large percentage of which travel straight through without a stop-over. The distance by stage between San Francisco and Portland, Ore., is 720 miles and the patronage daily has warranted four through schedules daily between these points during the present summer months, and a surprisingly large number of patrons travel straight through without stopping, the trip requiring 31 hours of elapsed time en route.

"Considerable may be said about the fact that stages have decreased the patronage of the railroads, but it is my experience that such is not the fact, but rather the automobile has stimulated travel, and we believe that today there is far more travel by both rail and motor stage combined than there was formerly. To our minds the automobile has taken away traffic from both rail and motor service. As a typical illustration I desire to cite an instance where this has proven to be the fact. The Pickwick Stages had its origin as before mentioned over a 35 mile route between San Diego and Escondido, Calif. This route was a very fruitful one for stage service until approximately three years ago, when an all paved highway was completed over this route. Since that time the patronage of stage service between these points and over that route has decreased to the vanishing point, so that today practically no local service whatever is warranted in this territory. Many other instances may be cited over all the territory served by this system, and it is a case of the through service being that such is mostly patronized."

Service Offered by Trucks

Phil Jacobson, executive secretary of the California Interurban Motor Freight Association, described the service rendered by its members. His testimony is abstracted below:

"In August, 1922, when the stability of the then regulated truck carriers was somewhat in question, a group of 15 of the established certificated carriers formed an organization under the name of the Franchise Motor Freight Association. This organization under its original plan was formed for the purpose of furthering the development of motor truck regulation and establishing in the eyes of the shipping public the reliability and responsibility of the then existing certificated carriers. This organization with an original membership of 15 carriers gradually grew as the development of the territory necessitated the creation of additional regularly operated truck lines under certificate.

"The inauguration of this regular service was instrumental, to a great extent, in developing small business communities along the highways which, in turn, encouraged settlers to populate the district. A great number of the towns now served by motor truck transportation with daily operations have no other means of regular freight transportation and are entirely dependent upon the regular operation of our certificated carriers.

"Development of certified motor lines has taken place throughout the state of California, but due to the phenomenal growth of Southern California, the developed or settled territory extended beyond the limits of existing rail transportation.

"In 1925, the Franchise Motor Freight Association became a statewide organization and changed its name to the California Interurban Motor Freight Association and incorporated within its membership a group of operators radiating out of San Francisco and Oakland, also a group of operators who were established in one union terminal depot and operating out of the City of Fresno. In addition, it included approximately 95 lines whose point of origin or destination is Los Angeles.

"The continued growth of southern California and the development of the highways, coupled with the growth of rural communities, increased the business of the regular carriers and encouraged additional investment in rolling stock, in terminal facilities and equipment until, at the present time, an individual line is being operated with terminals and equipment in excess of the value of \$500,000. The tendency during the past year, although a great number of new certificates have been granted, has been toward consolidation. We have operating out of Los Angeles, which is the hub through which most traffic moves, operators radiating from a distance of approximately 260 miles north of Los Angeles to the Mexican border.

"We have within our membership operators engaged in the transportation of general freight in less than truck load lots, also heavy tonnage operators. There are also certificated carriers specializing in expedited package delivery, rendering a number of trips daily within a radius of 80 miles of Los Angeles. There are certificated carriers transporting special commodities such as milk and dairy products, citrus products, poultry, eggs, and live stock. We have in our organization a carrier transporting furniture exclusively throughout the state of California on regular schedule operating regardless of the volume of the tonnage offered.

There are also carriers specializing in the transportation of lumber, fresh meats, hay and grain, newsprint paper, newspapers and motion picture films.

"The operation between the two major points, Los Angeles and San Diego, is regularly conducted by two lines who transport general commodities from Los Angeles to San Diego and intermediate points and return with farm produce for the early markets in Los Angeles.

"An innovation is presented by the Boulevard Express in that they maintain a radio service between their two offices which are 135 miles apart, rendering a 'buy-out' service for their San Diego customers in Los Angeles.

"The operation between Los Angeles and Imperial valley is conducted daily, general commodities being transported into the valley, dairy and agricultural products being brought to Los Angeles on the return haul.

"A great number of lines serve Orange, Riverside, and San Bernardino countries, transporting general commodities and returning to Los Angeles and Los Angeles Harbor with citrus fruits, walnuts and agricultural commodities for local consumption or trans-shipment by water to eastern and foreign points.

"On the north coast route, transportation is conducted with general commodities daily as far as San Luis Obispo and Fresno and all intermediate points on the valley route. Many large towns are covered en route between Los Angeles and these northern points. In fact, on the valley route, many towns are served that have no other means of freight transportation. Radiating throughout the territory from Fresno and San Luis Obispo to the Mexican border are hundreds of certificated carriers serving various points regularly. The Santa Barbara Red Line maintains a fresh meat delivery service by which they place in the refrigerator of the butcher shops along the route for 229 miles their fresh meats during the night.

"Practically all of the carriers, except those rendering an expedited twice daily service, leave their Los Angeles terminals early in the evening, travel throughout the night and deliver their commodities in the early morning. Certificated carriers in the territory transport, in addition to general freight, daily, U. S. mail and parcel post to towns not served by rail.

"Terminal points throughout the territory have established offices where loads are transferred to smaller trucks for delivery. Other towns are served directly from the main line trucks."



New Mack City Type Bus with Gas-Electric Drive

Court Upholds Rights of Railways

Declares operation of competitive bus lines illegal if utility already in field is willing to provide needed service

RAILWAYS are entitled to an opportunity to provide all necessary transportation service in their respective territories before a competing utility, such as a bus line, is given a certificate to operate, according to a decision by the Illinois Supreme Court. The case involved a certificate granted to the Egyptian Transportation System, Inc., by the Illinois Commerce Commission, which had been held to be legal by the district court over the protest of the Louisville & Nashville and the Illinois Central, whose railway lines were paralleled by certain of the bus lines. The operations of the Egyptian Transportation System were described in the *Railway Age* of April 24, page 1167.

The certificate covered five routes, one between Harrisburg and Shawneetown, one between Johnston City and Mt. Vernon, one between Mt. Vernon and Nashville, one between Centralia and Carbondale, and one between Duquoin and Benton. The Supreme Court ruled that the commission erred in refusing to permit the railways to show in what manner they would meet the requirements as to service in these districts and in granting a certificate of convenience and necessity to the bus lines paralleling the railway lines, without affording the railways an opportunity to provide the required service, and that the district court erred in confirming its holding in that regard. The Supreme Court therefore set aside the certificate, remanding the case to the circuit court with directions to return it to the Illinois Commerce Commission for further proceedings consistent with the Supreme Court decision.

On account of the legal precedent established by the case and its consequent importance, the decision of the Supreme Court is abstracted below:

The Louisville & Nashville complains that the proposed bus line between Mt. Vernon and Nashville, which is on route 15 of the state system of highways, parallels its railroad the entire distance, and between Harrisburg and Shawneetown, over road No. 13, parallels its railroad a portion of the way. The complaint of the Illinois Central is that between Centralia and Carbondale, and between Duquoin and Benton the proposed bus line parallels its right of way. It is urged that the issuance of such certificate of convenience and necessity will ruin the local business of these railroads.

The two appellant railroad companies have filed separate brief, but the points of law raised are practically the same in each, the cases varying somewhat on the facts.

Necessity for Extra Service

Concerning the claim (of the railways) that public convenience and necessity do not require additional service in the territory affected, the evidence shows that the population of the territory from Marion north to Mt. Vernon, west to Ashley, south to Carbondale and east to Marion, and that territory extending west from Ashley to Nashville and north to Centralia, is about 80,000. The distance from Marion to Mt. Vernon is about 41 miles, from Mt. Vernon to Nashville about 25 miles, from Carbondale to Centralia, 56 miles, and from Duquoin to Benton, 19 miles, making a total mileage of 141 miles. The Egyptian Transportation Company already has in operation buses in additional territory in this com-

munity with a mileage of 80 miles. There is no suburban population in this district. The principal occupations of the people are agriculture and mining.

Much evidence was taken pertaining to train service and the cost thereof. Schedules offered in evidence showed that between Centralia, Ill., and Carbondale, the Illinois Central service consisted of six trains each way per day, two of which were local trains, two limited or through trains, and two which stopped at certain points between Centralia and Carbondale. They showed that the daily train schedule between Duquoin and Benton contained four trains each way, all of which were either local or stopped on flag for through passengers. The Louisville & Nashville showed by its train schedules that it was operating five trains daily in each direction between Nashville and Mt. Vernon and two trains each way per day between Shawneetown and Eldorado.

Counsel for the bus company make the argument that the people of these districts are entitled to a two-hour service. Beyond the statement of the president of the bus company, who qualified as an expert in railroading, there is nothing in the record to indicate that there is any demand for a two hour service in this territory. It is urged that the proximity of this territory to St. Louis and the inability to get to that city from the territory affected shows the necessity for the service. This district, however, is not close to St. Louis. What constitutes public convenience and necessity is a matter not always easy to determine. One train each way per day met the demands a generation ago, but no one will contend that such would meet the needs of any community of average population today. While this district is not suburban territory and the occupations of the people do not make it appear that there is in this community a necessity for two hour service, that is a matter primarily in the province of the commerce commission to determine, and the court is not authorized to substitute its judgment for that of the commission where there is any substantial basis in the evidence upon which to base a finding of such necessity.

Rights of Existing Utilities

The important point raised in the case is that the appellants are utilities already in the field, and that before a competing utility is allowed to parallel their lines and take business from them, they should be given an opportunity to supply all needed service. While the evidence of the appellants before the commission went largely to the question whether any necessity existed for more service than was being given, both appear in the record as ready and willing to give whatever service is required of them. The Illinois Central, in its petition for rehearing, asked for an opportunity to present evidence to show that it was ready, willing and able to give as much service for the transportation of passengers in that territory as the commission would require. This evidence was refused and the motion for rehearing was denied. The point involved here is one which goes to the very foundation of the doctrine of the law in force in this state concerning the regulation of public utilities.

Section 51 of the Public Utilities Act provides: "Whenever the commission, after a hearing had upon its own

motion or upon complaint, shall find that any railroad or street railroad company does not run a sufficient number of trains or cars, or possess or operate sufficient motive power, reasonably to accommodate the traffic, passenger, or freight, transported by or offered for transportation to it, or does not run its trains or cars with sufficient frequency, or at a reasonable or proper time having regard to safety, or does not stop the same at proper places, or does not run any train or trains, car or cars, upon a reasonable time scheduled for the run, the commission shall have power to make an order directing any such railroad or street railroad company to increase the number of its trains or of its cars or its motive power or to change the time for starting its trains or cars or to change the time schedule for the run of any train or car," etc.

To authorize an order of the commerce commission granting a certificate of convenience and necessity to one carrier though another is in the field, it is necessary that it appear first that the existing utility is not rendering adequate service. The method of regulation of public utilities now in force in Illinois is based on the theory of a regulated monopoly rather than competition; and before one utility is permitted to take the business of another already in the field, it is but a matter of fairness and justice that it be shown that the new utility is in a position to render better service to the public than the one already in the field. It is in accord with justice and sound business economy that the utility already in the field be given an opportunity to furnish the required service. The commerce commission, under the Public Utilities Act, has power to require additional service, and in the absence of a showing that the public interest would be better served by granting a certificate to an entirely new and competing utility, such certificate should not be granted until it be determined whether the utility already in the field can meet the requirements of public convenience and necessity. The power of the state to regulate a utility carries with it the power to protect such utility against indiscriminate competition, and such power should be exercised to that end.

Railways' Financial Responsibility

Railroads have permanent road-beds and trackage which require an outlay of millions of dollars and which in turn yield large revenue to the people of the state. The average bus line is incorporated for a comparatively small sum. The railroad is of vastly greater financial responsibility. This is a matter of substantial public interest, particularly in cases of accident. It is the established policy of the law in this state that a public utility be allowed to earn a fair return on its investments. It is therefore not only unjust but poor economy to grant to a much less responsible utility company the right to compete for the business of carrying passengers paralleling its line unless it appears that the necessary service cannot be furnished by such railroad. Appellants offer to provide whatever increase in accommodations and service is deemed essential to meet the public convenience and necessity. It is but consonant with our law regulating public utilities that they be given opportunity to do so. It is argued that appellants cannot give the necessary service except at a large loss. Such argument is beside the question involved in the proceedings before the commission in this case. Appellants have stated that they are willing and able to give such service, and it appears clear that the commission is not justified in granting a certificate of convenience and necessity to a competing line until the utility in the field has had an opportunity to demonstrate the truth of its statement and to give the required service.

Changes in Bus Design*

By R. H. Pinkley

Assistant General Manager, Milwaukee Electric Railway & Light Co., Milwaukee, Wis.

DEVELOPMENT of the bus business has been so rapid in the last five years that any equipment more than one year old at this time might be considered out of date. Neither bus operators nor equipment manufacturers can well predict what will be the last word in bus development. The manufacturers are in a continual state of despair because nothing can be standardized and every job must have special features. The de luxe bus of today may be passé next spring. However, we venture to prophesy some of the features that may be expected following the present trend:

(1) Weights of buses for interurban service will not be materially increased. Highway officials will see to that.

(2) Interior frills and fancies must yield to more plain and substantial features which can be maintained with reasonable expense. Comfort and ease, however, cannot be sacrificed. Headroom may be increased and the general height made greater, especially where there is heavy short distance riding.

(3) More steel and metal and less wood will be used in frames and bodies.

(4) Balloon tires are being tried and if found practical may be adopted.

(5) Four-wheel brakes of pneumatic or hydraulic types will be considered essential.

(6) More powerful engines will be developed, possibly by adopting eight cylinders but certainly not less than six. The bus patrons are just as particular about vibration and excessive gear noises as the private car driver.

(7) In general riding qualities of buses will more nearly approach private car standards.

An important feature in the trend of bus operation is the development of proper standard sizes of buses to be used for various conditions of traffic. This requirement must be determined for each locality and for each condition of traffic. There is no doubt but that the lighter weight vehicles traveling on more frequent headways will draw additional traffic. Any decrease in seating capacity, however, increases the operating cost per seat. A bus which carries only eight or ten passengers must average 50 per cent of its seats filled over every mile of its operation to pay its way, whereas a bus which seats 29 passengers may be operated with an average of 30 per cent of its seats filled at all times. It is obvious, therefore, that if smaller vehicles are used the traffic must either be fairly dense or a higher rate of fare must be charged.

*Abstract of paper presented before the Central Electric Railway Association at Indianapolis, Ind., on January 28.

THE PENNSYLVANIA'S first motor bus operation (from Chambersburg, Pa., to Piney Mountain Inn, 12 miles) was placed in full service on August 24 with the full initial quota of five buses. The buses are being operated by F. J. Scarr, supervisor of motor service of the railroad, pending the granting of a charter to the Pennsylvania General Transit Company, the railroad's highway subsidiary. The application of this company for a charter has been approved by the Public Service Commission and is now before the governor, who has referred it to the attorney-general for his opinion. An early commencement of motor truck operation in freight service between Washington and Waynesburg, permit for which was recently granted by the Public Service Commission, is planned. The application for authority to provide highway passenger service on this route was denied by the commission. Another application has been filed covering the same termini but specifying a different route.

General News Department

Representatives of the Brotherhood of Railway and Steamship Clerks, Express and Station Employees and officers of the Louisville & Nashville have signed an agreement whereby approximately 4,500 employees of the Louisville & Nashville will receive wage increases totaling \$400,000 annually. The new agreement provides for a sliding scale of wages, according to the length of service and type of work handled.

The golden anniversary celebration of the "wedding of the rails" will be held at Lang, Cal., on September 5, in commemoration of Los Angeles first railroad contact with the outside world. A duplicate of the first train that left Los Angeles, 50 years ago, is being assembled by the Southern Pacific, for the celebration. Pioneer residents will be invited to ride on the train as the special guests of the Chamber of Commerce.

Eight tramps killed and four injured was the result of a derailment on the Chicago, Burlington & Quincy at Wyand, Ill., on August 22. The train was moving at high speed on a descending grade and the cause of the derailment is believed to have been the failure of an archbar of a tank car filled with molasses. The wreck was a bad one, destroying several cars of perishable freight and damaging the station. Reports say that the 12 trespassers were all in one car.

A celebration was held at Eugene, Ore., on August 19 and 20, commemorating the completion of the Southern Pacific's new main line from Eugene, Ore., to California, via the Natron cut-off. Pioneers of the early days of Oregon paraded on August 19 and the 111 entries each typified the spirit of the pioneers who entered Oregon. The development of transportation from the early days to the present time was shown by floats on the first day while on August 20 a civic and industrial parade was held.

B. of L. E. to Open New Banks

The Brotherhood of Locomotive Engineers is planning to open a bank in New York in two or three months, following the sale of the Brotherhood interest in the Brotherhood Trust Company of New York. It will also open a bank in Cleveland, Ohio, and will start a co-operative national bank in San Francisco, Cal., as part of its national system. The sale of the New York bank took place when the Equitable building, which had been controlled by the Brotherhood, was sold and when a stock interest in the Empire Trust Company was disposed of. Each sale was made because of the profit derived through the transaction. The Brotherhood still holds a substantial interest in the Empire Trust Company, although considerably short of control.

"Say It with Service"

Following action taken by the Brotherhood of Locomotive Firemen and Enginemen of the Missouri-Kansas-Texas, at Denison, Tex., urging members of the brotherhood to solicit business for their road, President Whitehead addressed a letter to Vice-President Whitenton in which he emphasized the importance of employees' solicitation of passengers through service, and through the elimination of rough handling. His letter follows, in part:

"I would like to have the superintendents say to our engineers, in both road and yard service, that I think there is no more effective way that they can solicit passenger business than by the careful handling of passenger trains, including switching in terminals, and I personally ask them to give this suggestion their most careful attention. I can think of no other one thing that, by comparison of service, is more attractive to passengers than a smooth ride while traveling on a train. What I desire is to have this made one of the special features of our passenger service."

National Safety Council

The fifteenth annual safety congress, to be held under the auspices of the National Safety Council, is announced to come off in Detroit, Michigan, in the week beginning October 25. Among the speakers announced are: Isaiah Hale, A. T. & S. F.; J. T. Loree, D. & H.; W. H. McGonagle, D. M. & N.; and F. W. Matson, member of the Minnesota Railroad and Warehouse Commission. Also C. W. Frey, superintendent car shops, Michigan Central; W. H. Jones, C. N.; Victor Parvin, Ann Arbor (representing the American Association of Railway Superintendents); Dr. G. G. Dowdall and W. A. Booth, representing the Medical and Surgical section, A. R. A.; L. K. Silcox and C. L. LaFountaine, representing the mechanical division, A. R. A.; E. R. Lewis, M. C. and F. W. Mitchell, N. Y., N. H. & H.

Eastern Trainmen's Wage Case to Be Arbitrated

An agreement was reached on August 25 between committees representing the Brotherhood of Railroad Trainmen, the Order of Railroad Conductors and the eastern railroads to submit the demands of conductors, trainmen and switchmen for increases in pay, to a board of arbitration.

Representatives of the railroads and the unions signed the agreement after a series of conferences held in New York with the United States Board of Mediation, appointed by the President under the provisions of the Watson-Parker Railway Labor bill.

The agreement reached Wednesday provides only for arbitration of the dispute between the employees of the eastern railroads.

The agreement provides for an arbitration board to meet in New York, consisting of six arbitrators, two appointed by the railroads, two by the unions and two neutral members. The effecting of the agreement ends the work of the Board of Mediation on this case in the east except for help it will give in establishing the arbitration machinery for the contending railroads and unions. The coming arbitration will be the first to be held under the provisions of the Watson-Parker bill in an endeavor to settle a wage dispute between railroad employees and the railroads.

A Half Century of Single-Track Blocking

Saturday, August 7, was the fiftieth anniversary of a collision at Radstock, England, killing two passengers, the investigation of which was followed by the invention, by Edward Tyer, of the electric train-tablet, the first simple and successful apparatus for the regulation of trains on single track by the controlled manual system; and the Railway Gazette (London) takes the occasion to review the remarkable success with which single-track railways have been operated in Great Britain during the fifty years that have since elapsed. Radstock, by the way, was not a solitary instance, a collision having occurred two years before, at Norwich, in which 21 passengers and four employees were killed. Tyer's patent was filed in March, 1878, and his device, which superseded the simple staff system (never available except at one end of the section) by the electric apparatus, making it possible at any moment to give the right of road from either end of an unoccupied section, at the same moment preventing the possibility of giving a conflicting right at an opposite end, at once had the approval of the Board of Trade.

During 44 years, 6 months, following the Radstock collision, there were only two occasions for governmental inquiries into collisions on single-track lines, in which passengers were killed; and since the token systems—including the tablet, the electrical train staff (1889) and other devices—came into general use, about 1892, only six collisions in all have been recorded, and only one of these—that on the Cambrian Railway on January 18,

(Continued on page 394)

Freight Operating Statistics of Large Steam Roads—Selected Items for June, 1926,

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Average number of locomotives on line			
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross, excluding locomotive and tender	Net, revenue and non-revenue	Service-able	Un-serviceable	Per cent un-serviceable	Stored
New England Region:												
Boston & Albany.....1926	407	231,810	247,039	25,935	5,225	66.2	271,370	101,769	125	18	12.4	16
1925	404	245,696	265,514	30,629	5,071	68.8	258,994	97,477	122	19	13.7	9
Boston & Maine.....1926	2,143	463,276	538,641	51,029	12,484	70.2	627,476	254,332	330	91	21.6	58
1925	2,257	495,936	564,526	54,989	12,512	71.1	618,268	250,504	351	92	20.7	40
N. Y., New H. & Hartf.....1926	1,892	494,891	520,080	34,082	14,091	67.9	721,767	293,316	282	43	13.3	23
1925	1,909	473,710	492,535	32,631	13,195	69.9	656,143	266,665	289	61	17.5	32
Great Lakes Region:												
Delaware & Hudson.....1926	875	382,516	518,501	54,322	10,929	64.2	691,888	338,185	243	41	14.5	69
1925	875	381,574	513,495	52,266	10,106	64.0	644,020	314,599	241	35	12.5	68
Del., Lack. & Western.....1926	999	583,217	680,292	86,236	18,418	67.7	1,066,693	480,104	266	52	16.3	19
1925	993	559,579	660,257	85,334	17,479	69.4	980,136	441,231	296	59	16.5	42
Erie (inc. Chic. & Erie).....1926	2,323	908,867	1,002,381	112,913	34,406	64.9	2,061,112	890,713	550	126	18.6	125
1925	2,325	858,469	952,727	108,538	32,618	66.1	1,936,117	849,313	633	105	14.3	209
Lehigh Valley.....1926	1,345	616,209	678,025	75,411	19,110	63.4	1,165,782	528,750	387	89	18.7	53
1925	1,357	583,079	640,979	71,840	18,001	64.7	1,066,989	479,998	426	79	15.6	94
Michigan Central.....1926	1,835	584,662	599,529	20,847	19,397	61.3	1,073,492	379,143	265	50	15.9	78
1925	1,826	544,169	558,055	16,906	18,534	61.6	1,019,607	360,447	316	42	11.8	111
New York Central.....1926	6,482	2,001,393	2,254,225	148,843	76,097	63.5	4,567,052	1,995,200	1,199	307	20.4	366
1925	6,478	1,867,663	2,094,973	144,852	69,004	63.4	4,122,918	1,793,196	1,204	369	23.5	377
New York, Chic. & St. L.....1926	1,665	610,923	618,240	6,436	19,211	63.7	1,069,878	406,669	232	59	20.3	49
1925	1,669	606,568	614,702	7,326	18,724	63.9	1,030,773	391,892	248	59	19.2	58
Pere Marquette.....1926	2,179	415,257	421,701	6,086	10,086	64.4	572,761	237,933	190	23	10.9	26
1925	2,198	374,191	388,191	6,999	9,195	64.1	510,750	217,837	189	22	10.3	36
Pitts. & Lake Erie.....1926	231	128,865	132,112	1,582	4,556	63.9	353,286	203,750	57	24	29.6	12
1925	231	113,822	117,116	819	3,732	63.2	285,781	165,545	74	16	17.7	34
Wabash.....1926	2,497	686,319	712,172	10,371	20,849	65.4	1,171,113	459,488	319	65	17.0	62
1925	2,497	626,251	651,387	9,659	20,017	66.6	1,099,996	440,673	328	57	14.8	78
Central Eastern Region:												
Baltimore & Ohio.....1926	5,197	1,941,131	2,246,678	181,756	56,804	61.7	3,744,697	1,794,736	1,046	195	15.7	165
1925	5,196	1,793,383	2,093,845	153,331	52,453	63.5	3,345,667	1,613,324	987	273	21.7	135
Central of New Jersey.....1926	691	269,258	292,350	42,544	7,912	58.0	530,884	253,369	228	38	14.2	55
1925	692	282,439	310,490	36,755	7,235	59.9	467,112	223,816	242	36	13.0	44
Chicago & Eastern Ill.....1926	945	231,353	231,782	3,521	6,426	63.7	372,066	165,847	128	37	22.4	49
1925	945	212,558	213,060	3,292	5,967	64.3	343,478	156,545	138	26	15.8	65
Clev., Cin., Chic. & St. L.....1926	2,374	744,075	782,504	25,594	23,868	61.2	1,553,635	721,299	332	99	22.9	38
1925	2,376	706,019	748,292	15,145	21,769	59.9	1,417,647	645,253	356	74	17.3	69
Elgin, Joliet & Eastern.....1926	460	122,994	129,457	5,117	3,720	64.9	279,241	166,457	77	15	16.5	4
1925	460	118,675	123,813	3,769	3,550	65.0	264,715	140,922	71	20	21.7	...
Long Island.....1926	393	47,768	52,452	15,210	615	53.9	41,081	16,171	47	12	19.8	...
1925	393	44,974	49,166	13,649	565	56.1	36,644	14,411	42	11	20.1	...
Pennsylvania System.....1926	10,880	4,707,645	5,103,330	372,848	139,121	63.3	9,124,093	4,251,242	2,661	592	18.2	369
1925	10,888	4,525,740	4,855,675	355,107	128,458	63.6	8,413,799	3,933,252	2,582	805	23.8	226
Reading.....1926	1,131	616,863	673,835	65,150	16,592	60.4	1,136,552	571,747	369	64	14.9	75
1925	1,132	602,073	658,803	64,666	15,348	60.2	1,049,265	522,332	395	74	15.7	106
Pocahontas Region:												
Chesapeake & Ohio.....1926	2,650	1,190,067	1,255,139	40,064	39,278	56.2	3,215,353	1,750,542	556	93	14.3	62
1925	2,601	1,148,999	1,198,310	38,255	36,448	56.6	2,883,330	1,583,606	475	101	17.6	17
Norfolk & Western.....1926	2,231	919,305	1,111,711	42,669	32,904	59.7	2,701,457	1,476,218	600	52	8.0	166
1925	2,232	833,974	1,010,055	33,464	27,422	59.8	2,217,389	1,180,771	583	79	11.9	155
Southern Region:												
Atlantic Coast Line.....1926	4,931	858,038	880,932	14,806	22,701	61.9	1,294,552	513,489	443	52	10.5	74
1925	4,887	801,366	816,457	13,075	20,865	61.8	1,174,967	456,315	368	63	14.6	38
Central of Georgia.....1926	1,907	381,866	384,917	8,368	8,351	67.8	483,488	221,204	153	22	12.7	3
1925	1,907	374,243	376,073	6,206	7,439	68.8	408,398	174,622	154	11	6.4	17
I. C. (inc. Y. & M. V.).....1926	6,555	1,929,842	1,943,621	54,673	53,839	63.7	3,345,600	1,392,226	756	102	11.8	10
1925	6,555	1,838,327	1,854,232	37,794	50,069	62.0	3,133,803	1,283,107	799	109	12.0	54
Louisville & Nashville.....1926	5,021	1,793,480	1,869,299	59,805	35,970	59.2	2,463,809	1,168,182	586	123	17.3	20
1925	5,027	1,732,196	1,818,028	60,556	33,852	60.0	2,263,026	1,069,605	614	106	14.7	31
Seaboard Air Line.....1926	3,904	541,252	553,820	7,437	14,072	65.6	782,287	322,995	258	40	13.4	25
1925	3,755	530,782	540,505	7,877	13,246	64.8	726,071	289,837	217	34	13.5	4
Southern Railway System.....1926	8,043	2,063,253	2,101,591	37,484	49,195	63.8	2,813,502	1,148,819	1,068	156	12.8	49
1925	8,157	1,976,641	2,013,655	37,790	46,989	64.5	2,618,490	1,046,610	1,082	142	11.6	96
Northwestern Region:												
Chic. & North Western.....1926	8,457	1,484,402	1,527,278	24,870	37,180	62.2	2,219,249	913,111	743	161	17.8	104
1925	8,469	1,298,202	1,327,137	24,381	31,503	62.4	1,800,853	719,258	754	209	21.7	151
Chic., Milw. & St. P.....1926	11,189	1,473,076	1,562,858	95,371	43,505	65.4	2,447,317	1,038,983	870	174	16.7	226
1925	11,202	1,454,554	1,532,157	76,347	42,325	65.9	2,380,347	1,037,540	952	176	15.6	178
Chic., St. P., Minn. & Om.....1926	1,819	287,511	308,357	11,406	5,954	69.0	310,836	124,426	171	27	13.8	4
1925	1,819	275,461	295,405	11,614	5,505	69.9	285,896	105,328	165	31	15.7	2
Great Northern.....1926	8,200	757,561	785,639	42,792	27,463	61.8	1,718,935	806,031	558	157	22.0	129
1925	8,253	762,857	787,330	40,256	27,046	64.4	1,650,279	810,119	571	175	23.4	120
M., St. P. & S. Ste. M.....1926	4,372	503,618	517,847	4,783	13,205	69.3	705,789	322,033	300	40	11.8	21
1925	4,372	488,423	498,460	5,465	12,376	67.3	647,819	285,241	297	45	13.1	26
Northern Pacific.....1926	6,510	865,454	910,342	48,673	26,700	66.2	1,512,256	639,562	515	141	21.6	87
1925	6,479	791,560	827,645	47,248	24,039	71.0	1,334,746	585,350	516	165	24.2	100
Oreg.-Wash. R. R. & Nav.....1926	2,185	191,301	204,715	19,666	5,688	70.2	326,162	150,889	131	20	13.4	12
1925	2,185	175,515	185,935	16,233	5,003	74.1	274,041	127,476	140	22	13.7	16
Central Western Region:												
Atch., Top. & S. Fe.....1926	10,143	1,512,789	1,620,830	95,205	48,229	66.6	2,792,602	1,081,386	798	144	15.3	206
1925	10,045	1,366,533	1,456,711	81,713	42,818	67.3	2,430,293	943,672	821	153	15.7	252
(incl. P. & S. F.).....1926	1,022											

Compared with June, 1925, for Roads with Annual Operating Revenues above \$25,000,000.

Region, road and year	Average number of freight cars on line			Per cent un-serv-ice-able	Gross ton-miles per train-hour, ex-cluding locomotive and tender	Gross tons per train, ex-cluding locomotive and tender	Net tons per train	Net tons per loaded car	Net ton-miles per car-day	Car miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles including locomotive and tender	Locomotive miles per locomotive day
	Home	Foreign	Total										
New England Region:													
Boston & Albany.....1926	2,553	5,477	8,030	4.9	15,025	1,171	439	19.5	422	32.8	8,337	172	64.0
1925	2,749	5,778	8,527	2.9	13,687	1,654	397	19.2	381	28.8	8,040	169	70.0
Boston & Maine.....1926	13,597	13,859	27,456	7.3	14,685	1,354	549	20.4	308	21.6	3,956	125	46.7
1925	14,682	12,657	27,339	9.3	13,937	1,247	505	20.0	305	21.4	3,699	132	46.6
N. Y., New H. & Hartf.....1926	18,611	19,982	38,593	14.3	17,223	1,458	593	20.8	253	17.9	5,168	117	56.7
1925	21,264	19,171	40,435	21.4	15,757	1,385	563	20.2	220	15.6	4,656	123	50.1
Great Lakes Region:													
Delaware & Hudson.....1926	8,422	6,458	14,880	5.9	22,591	1,809	884	30.9	758	38.1	12,880	151	67.1
1925	8,964	6,203	15,167	7.5	20,413	1,688	824	31.1	691	34.7	11,982	161	68.4
Del., Lack. & Western...1926	16,995	8,401	25,396	4.6	22,120	1,829	823	26.1	630	35.7	16,015	131	80.5
1925	17,422	7,636	25,058	3.3	20,996	1,752	789	25.3	587	33.5	14,818	149	70.1
Erie (inc. Chic. & Erie)...1926	36,237	19,298	55,535	6.8	26,276	2,268	980	25.9	535	31.8	12,782	119	55.0
1925	38,595	19,171	57,766	7.5	25,660	2,255	989	26.0	490	28.5	12,174	117	47.9
Lehigh Valley .....1926	21,811	10,001	31,812	5.6	24,621	1,892	858	27.7	554	31.6	13,100	139	52.8
1925	21,355	7,968	29,323	7.4	24,933	1,830	823	26.7	546	31.6	11,794	139	47.1
Michigan Central .....1926	17,594	18,022	35,616	4.5	25,802	1,836	648	19.5	355	29.6	6,888	107	65.6
1925	18,516	17,286	35,802	4.3	26,930	1,874	662	19.4	336	28.0	6,580	105	53.5
New York Central.....1926	71,595	73,767	145,362	3.9	28,296	2,282	997	26.2	458	27.5	10,260	109	53.2
1925	78,021	67,434	145,455	4.2	26,952	2,208	960	26.0	411	25.0	9,228	111	47.5
New York, Chic. & St. L. 1926	13,401	10,560	23,961	6.9	23,736	1,751	666	21.2	566	41.9	8,142	103	71.5
1925	13,757	10,395	24,152	6.0	22,796	1,699	646	20.9	541	40.4	7,828	108	67.6
Pere Marquette .....1926	10,191	8,933	19,124	4.4	16,325	1,379	573	23.6	415	27.3	3,640	107	66.7
1925	11,017	8,002	19,019	6.0	15,001	1,365	582	23.7	382	25.1	3,303	109	62.6
Pitts. & Lake Erie.....1926	14,870	8,358	23,228	7.2	29,990	2,742	1,581	44.7	292	10.2	29,343	64	54.9
1925	16,135	6,212	22,347	5.0	28,250	2,511	1,454	44.4	247	8.8	23,841	66	43.9
Wabash .....1926	14,733	10,137	24,870	3.1	25,636	1,706	669	22.0	616	42.7	6,134	116	62.6
1925	14,960	10,767	25,727	3.0	24,127	1,756	704	22.0	571	38.9	5,883	120	57.2
Central Eastern Region:													
Baltimore & Ohio.....1926	69,443	33,714	103,157	3.3	20,825	1,929	925	31.6	580	29.7	11,511	148	65.2
1925	71,983	34,537	106,520	8.4	20,175	1,866	900	30.8	505	25.8	10,349	148	59.4
Central of New Jersey...1926	18,935	11,660	30,595	5.8	18,252	1,972	941	32.0	276	14.9	12,224	155	42.0
1925	19,135	10,684	29,819	4.0	15,351	1,654	792	30.9	250	13.5	10,778	161	41.6
Chicago & Eastern Ill...1926	14,358	4,134	18,492	17.9	21,659	1,608	717	25.8	299	18.2	5,849	130	47.8
1925	15,329	3,625	18,954	17.4	21,983	1,616	736	26.2	275	16.3	5,521	129	43.9
Clev., Cin., Chic. & St. L. 1926	20,352	21,976	42,328	5.3	26,400	2,188	969	30.2	568	30.7	10,127	110	62.5
1925	21,740	17,436	39,176	5.5	25,503	2,008	914	29.6	549	30.9	9,051	112	59.2
Elgin, Joliet & Eastern...1926	9,845	7,630	17,475	5.4	15,803	2,270	1,353	44.7	318	10.9	12,063	122	48.8
1925	10,128	7,093	17,221	8.8	17,812	2,231	1,187	39.7	273	10.6	10,216	115	47.3
Long Island .....1926	2,094	6,902	8,996	0.9	4,895	860	339	26.3	60	4.2	1,371	289	38.8
1925	2,088	5,038	7,126	1.3	4,681	815	320	25.5	67	4.7	1,221	298	40.1
Pennsylvania System....1926	212,453	85,358	297,811	9.7	21,727	1,938	903	30.6	476	24.6	13,025	122	56.1
1925	218,474	82,094	300,568	11.2	20,896	1,859	869	30.6	436	22.4	12,042	121	51.3
Reading .....1926	26,335	13,643	39,978	3.4	20,256	1,842	927	34.5	477	22.9	16,856	152	56.8
1925	26,826	14,203	41,029	2.4	20,121	1,743	868	34.0	424	20.7	15,386	156	51.5
Pocahontas Region:													
Chesapeake & Ohio.....1926	30,151	9,587	39,738	3.5	30,525	2,702	1,471	44.6	1,468	58.6	22,017	88	66.5
1925	30,426	10,643	41,069	4.3	26,673	2,518	1,378	43.4	1,284	52.2	20,297	98	71.5
Norfolk & Western.....1926	29,637	10,012	39,649	2.1	37,923	2,939	1,606	44.9	1,241	46.3	22,053	127	59.0
1925	31,267	7,900	39,167	4.0	33,263	2,659	1,416	43.1	1,005	39.0	17,637	133	52.5
Southern Region:													
Atlantic Coast Line.....1926	21,433	14,483	35,916	4.1	19,135	1,509	598	22.6	477	34.0	3,471	114	60.3
1925	20,238	12,480	32,718	4.3	18,628	1,466	569	21.9	465	34.4	3,112	105	64.3
Central of Georgia.....1926	4,814	7,429	12,243	3.2	17,418	1,266	579	26.5	602	33.5	3,867	142	74.9
1925	5,061	6,518	11,579	5.1	14,787	1,091	467	23.5	502	31.1	3,053	144	77.2
I. C. (inc. Y. & M. V.)...1926	40,985	25,006	65,991	4.3	22,939	1,734	721	25.9	703	42.7	7,079	119	77.7
1925	50,729	20,382	71,111	7.4	22,332	1,705	698	25.6	601	37.8	6,524	120	69.5
Louisville & Nashville...1926	46,050	16,901	62,951	10.8	16,515	1,374	651	32.5	619	32.2	7,755	148	90.8
1925	44,689	15,986	60,675	11.8	15,659	1,306	617	31.6	588	31.0	7,092	152	87.0
Seaboard Air Line.....1926	11,064	10,262	21,326	2.0	16,919	1,445	597	23.0	505	33.5	2,758	125	62.8
1925	11,163	9,216	20,379	3.4	15,981	1,368	546	21.9	474	33.4	2,573	129	72.7
Southern Railway System. 1926	52,851	26,110	78,961	5.3	18,567	1,364	557	23.4	485	32.6	4,761	148	58.3
1925	55,453	25,862	81,315	7.4	17,895	1,325	529	22.3	429	29.9	4,277	144	55.9
Northwestern Region:													
Chic. & North Western...1926	50,116	27,284	77,400	7.2	18,495	1,495	615	24.6	393	25.7	3,599	128	57.3
1925	52,747	24,609	77,356	10.2	16,851	1,387	554	22.8	310	21.7	2,833	131	46.8
Chic., Milw. & St. P....1926	55,097	19,638	74,735	6.1	20,606	1,661	705	23.9	463	29.7	3,095	129	52.9
1925	55,057	19,363	74,420	9.0	19,594	1,636	713	24.5	465	28.8	3,087	136	47.5
Chic., St. P., Minn. & Om. 1926	3,231	8,478	11,709	9.1	13,554	1,081	433	20.9	354	24.6	2,280	138	53.7
1925	3,536	8,869	12,405	8.2	13,331	1,037	382	19.1	283	21.1	1,930	149	52.2
Great Northern .....1926	43,188	8,376	51,564	9.5	27,017	2,269	1,064	29.3	521	28.7	3,277	113	38.6
1925	46,647	7,692	54,339	10.2	24,758	2,163	1,062	30.0	497	25.7	3,272	114	37.0
M., St. P. & S. Ste. M...1926	19,847	6,046	25,893	6.1	15,965	1,401	639	24.4	415	24.5	2,455	102	51.2
1925	20,171	5,256	25,427	7.9	15,411	1,326	584	23.0	374	24.1	2,175	106	49.1
Northern Pacific .....1926	36,354	7,359	43,713	8.2	23,350	1,747	739	24.0	488	30.7	3,275	133	48.7
1925	37,795	7,001	44,796	6.8	21,992	1,686	739	24.4	436	25.2	3,012	126	42.9
Oreg.-Wash. R. R. & Nav. 1926	7,556	4,003	11,559	5.2	20,203	1,705	789	26.5	435	23.4	2,301	167	49.5
1925	6,255	4,159	10,414	5.0	19,033	1,561	726	25.5	408	21.6	1,944	175	41.5
Central Western Region:													
Atch., Top. & S. Fe 1926	61,833	17,011	78,844	5.5	25,177	1,846	715	22.4	457	30.6	3,554	112	60.7
1925	62,775	14,489	77,264	6.3	23,940	1,778	691	22.0	407	27.4	3,132	118	52.7
Chic. & Alton.....1926	10,252	4,624	14,876	6.7	19,545	1,566	648						

General News Department

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1918—was due to the issuance of conflicting tablets. This case was never satisfactorily explained.

Sir John Pringle, reviewing the token systems in May, 1922, concluded that single-track roads operated under token systems have a higher degree of security than double-track lines; and, says the Railway Gazette, "There are so many economies in the use of the tablet or electric staff that on certain lines of light traffic double-track has been converted to single-track." The length of these converted lines is not given.

Cave-in Kills Six Men in the Moffat Tunnel

Six tunnel workers lost their lives on July 30 as the result of a heavy rock fall in the Moffat tunnel. The accident occurred in the railroad heading 12,010 ft. from the portal, at a point where the men killed were erecting "jumbo sets." The coroner's verdict, substantiated by a finding of the State Bureau of Mines, was "unavoidable accident."

The solid granite gneiss, at this point was apparently seamed in a direction unfavorable for effective support of the blocky formation, with the result that a slip occurred which released a huge block of rock which crashed through the temporary timbering support and staging without any warning to the crew working below on the "jumbo" framework. About 200 yards of rock followed from the roof and north side of the tunnel, 8-ft. above and 20-ft. beyond the last set of permanent timbering, which was practically uninjured by the cave-in. At the time the slip occurred, only a few feet had been opened up beyond this timbering and was being held by temporary stulls.

To provide support for the rock after this fall 12-in. by 12-in. cribbing was built up, and the cavity above the neat line of the permanent timbering was tightly packed with timber, after which permanent sets of 12-in. by 18-in. Oregon fir were placed in position and the temporary cribbing removed. Several tunnel trainloads of timber were required to support the roof while the rock and debris were being removed from the cave-in and the bodies of the miners, which were buried beneath, were released.

Taxes on Western Railroads Show Large Increase

The Western Railways' Committee on Public Relations has compiled figures taken from the statistics gathered by the Bureau of Railway Economics, which show that the taxes on railway properties in the western states have increased from 266 to 1,474 per cent in 1925, as compared with 1911. For the western district as a whole, railway tax payments have grown from \$39,853,265 in 1911 to \$146,665,332 in 1925. This is an increase of \$106,812,067, or 268 per cent. Western railway taxes averaged \$109.187 each day in 1911 and \$401,823 each day in 1925, an average daily increase of \$292,636.

In the first six months of 1926 there was a still further increase of six per cent on the western railways over the corresponding months of 1925. Some of this increase, of course, is due to the growth of railway facilities, but even on a mileage basis the tax increase has been large.

The taxes paid in 1925 by the large railways operating in Nevada amounted to \$1,762,440, an increase of \$1,650,460, or 1,474 per cent, over the 1911 total of \$111,980. The taxes per mile amounted to \$625 in 1911, while in 1924, the latest year for which the railway mileage in the state is available, they amounted to \$1,040. Further, from 1924 to 1925 the taxes paid in Nevada by the large railways increased 4 per cent.

In California, the taxes in 1925 amounted to \$12,862,516, an increase of \$11,876,844, or 1,205 per cent over the 1911 total of \$985,672. This was equivalent to \$525 per mile in 1911 and \$1,900 in 1924.

In Arizona, taxes in 1925 amounted to \$2,484,584, an increase of \$2,275,408, or more than 1,000 per cent as compared with the 1911 total of \$209,176. They were at the rate of \$210 per mile in 1911 and \$,000 per mile in 1924. From 1924 to 1925 the taxes increased 17 per cent.

In New Mexico, the amount paid totaled \$2,211,899, an increase of \$1,808,305, or 448 per cent over the 1911 total of \$403,594. This amounted to \$190 per mile in 1911 and \$750 per mile in 1924. In 1925 the taxes paid increased 6 per cent over 1924.

The taxes paid by Class I railways operating in South Dakota in 1925 amounted to \$3,161,483, an increase of \$2,380,466, or 305 per cent over the 1911 total of \$781,017. This amounted to \$215 per mile in 1911 and to \$645 in 1924. From 1924 to 1925, the taxes paid increased 16 per cent.

In Idaho, railway taxes amounted to \$2,871,657, an increase of \$2,147,991, or 297 per cent over the 1911 total of \$723,666. This equaled \$335 per mile in 1911 and \$1,075 in 1924. From 1924 to 1925 the taxes paid increased 4 per cent.

In Oregon, the railways paid taxes amounting to \$2,736,341 in 1925, which was an increase of \$1,995,326, or 269 per cent over the 1911 total of \$741,015. This was at the rate of \$360 per mile in 1911 and \$980 in 1924. From 1924 to 1925 the taxes paid increased 6 per cent.

In Utah, the taxes paid amounted to \$2,160,200 in 1925, an increase of \$1,573,640, or 268 per cent over the 1911 total of \$586,560. This equals \$395 per mile in 1911 and \$985 per mile in 1924. From 1924 to 1925 the taxes paid increased 5 per cent.

In Illinois, the railways paid taxes amounting to \$21,239,869 in 1925, an increase of \$15,448,217, or 267 per cent, over the 1911 total of \$5,791,652. This was at the rate of \$500 per mile in 1911 and \$1,780 in 1924. From 1924 to 1925 the taxes increased 6 per cent.

In Louisiana, railway taxes amounted to \$4,577,595 in 1925, an increase of \$3,326,903, or 266 per cent, over the 1911 total of \$1,250,692. This equals \$265 per mile in 1911 and \$1,125 per mile in 1924. From 1924 to 1925, the taxes paid increased 5 per cent.

Master Blacksmiths Supply Men's

Association Elect Officers for 1927

A total of 16 railway supply companies were represented at the thirtieth annual convention of the International Railroad Master Blacksmiths' Association held August 17, 18 and 19, 1926, at Hotel Winton, Cleveland, Ohio. The annual meeting of the Supply Men's Association was held on the last day of the convention at which time the following officers were elected to serve for the ensuing year: president, A. N. Lucas, Oxweld Railway Service Company; vice-president, C. B. Harmon, National Machinery Company; secretary-treasurer, W. R. Walsh, Ewald Iron Company. The following is a list of the exhibitors and representatives:

Acme Machinery Company, Cleveland, Ohio—Literature on bolt and forging machines. Represented by C. R. Davies, H. N. Anderson and C. E. Smith.

Ajax Manufacturing Company, Euclid, Ohio—Model of Ajax forging machine, forgings and literature. Represented by J. R. Blakeslee, W. W. Criley, G. G. Fristoe, A. L. Guilford, H. D. Heman and J. A. Murray.

Anti-Borax Compound Company, Fort Wayne, Ind.—Welding compounds and literature. Represented by C. O. Kahre.

Colonial Steel Company, Pittsburgh, Pa.—Literature on alloy and carbon tool steels. Represented by C. Carnahan and E. W. Thurber.

Crucible Steel Company of America, Pittsburgh, Pa.—Literature on dies, taps and high speed and special tool steel. Represented by F. Baskerfield, P. J. Connor, A. E. Jones and W. M. Stevenson.

De Renier Blatchford Company, Chicago—Represented by C. P. Nye and G. P. White.

Ewald Iron Company, Louisville, Ky.—Represented by R. F. Kilpatrick and W. R. Walsh.

Firth Sterling Steel Company, McKeesport, Pa.—Literature on bolt and rivet dies. Represented by W. C. Royce, C. E. Hughes, Alan Jackman, E. T. Jackman, T. A. Larecy and W. A. Nungesser.

Heppenstahl Forge & Knife Company, Pittsburgh, Pa.

Houghton, E. F., & Company, Philadelphia, Pa.—Railway springs, quenching oils, "drawtemp," literature. Represented by C. W. Nohl.

Metal & Thermit Corporation, New York—Specimens of thermit welding, literature. Represented by E. W. Bloom and H. D. Kelley.

National Machinery Company, Tiffin, Ohio—Specimens of machine forging work, literature. Represented by K. L. Ernst, C. D. Harman and H. E. Lott.

Oxweld Railway Service Company, Chicago—Oxy-acetylene welding equipment, literature. Represented by A. N. Lucas, C. E. Allen, G. M. Crownover, R. R. Kester, W. R. Montgomery and G. V. Rainey.

Pilot Pack Company, Chicago—Packing, literature. Represented by W. W. Bacon and J. Sinkler.

Railway Journal, Chicago—Copies of publication. Represented by E. C. Cook.

Railway Mechanical Engineer, New York—Copies of publication and books. Represented by H. C. Wilcox.

Rockwell, W. S. Company, New York—Oil and gas burners, forging and heat treating furnaces, literature.

Vanadium Alloys Steel Company, Latrobe, Pa.—Literature on alloy steels. Represented by R. R. Artz.

Traveling Engineers' to Hold Convention

The annual convention of the Traveling Engineers' Association will be held at the Hotel Sherman, Chicago, on September 14-17, inclusive. R. H. Aishton, president of the American Railway Association, will make the opening address. The subject, "The Locomotive of Today," will be presented by Samuel O.

Dunn, editor of the *Railway Age*, and will be discussed by W. R. Scott, president, Southern Pacific Lines in Texas & Louisiana; A. R. Ayers, assistant general manager, New York, Chicago & St. Louis; W. L. Bean, mechanical manager, New York, New Haven & Hartford; A. G. Trumbull, chief mechanical engineer, Erie; O. S. Jackson, superintendent motive power and machinery, Union Pacific System; C. T. Ripley, chief mechanical engineer, Atchison, Topeka & Santa Fe; J. B. Ennis, vice-president, American Locomotive Company; S. M. Vaclair, president, Baldwin Locomotive Works, and W. E. Woodward, vice-president, Lima Locomotive Works, Inc.

Other subjects to be considered are:

Smooth Train Handling, Frederick Kerby, Baltimore & Ohio, chairman.

Practical Instructions for New Firemen in Combustion and Locomotive Operation, M. A. Daly, Northern Pacific, chairman.

The Booster, J. A. Talty, Franklin Railway Supply Co., chairman.

Locomotive Availability in 100 per cent Condition, Up-to-date Roundhouse, Terminal Facilities and Modern Methods, P. O. Wood, Southern Pacific, chairman.

How Can the Traveling Engineer Cover His Growing Job? W. L. Hack, St. Louis-San Francisco, chairman.

Automatic Train Control, J. M. Nicholson, Atchison, Topeka & Santa Fe, chairman.

Revision of Progressive Examination for Firemen for Promotion and New Men for Employment, W. H. Corbett, Michigan Central, chairman.

The Roadmasters' Convention Program

The Roadmasters' and Maintenance of Way Association will hold its forty-fourth annual convention at the Auditorium hotel, Chicago, on September 21-23. The program for this meeting is as follows:

Tuesday, Sept. 21

- 10:00 a. m. Convention called to order.
- 10:10 a. m. Opening address.
- 10:30 a. m. Address by R. H. Aishton, president, American Railway Association, Chicago.
- 11:00 a. m. President's address—G. W. Morrow.
Report of Secretary and Treasurer.
Appointment of Special Committees.
- 11:30 a. m. Report of Committee on the Repair of Track Tools, B. C. Dougherty, chairman, roadmaster, Chicago, Milwaukee & St. Paul, Chicago.
- 12:30 p. m. Adjournment.
- 2:00 p. m. Address on Safety in the Maintenance of Way Department, by Thomas H. Carrow, supervisor of safety, Pennsylvania Railroad, and chairman, Safety Section, American Railway Association, Philadelphia, Pa.
- 3:00 p. m. Report of Committee on The Construction and Maintenance of Highway Crossings and Their Approaches (including signs), to Promote Safety, A. E. Preble, chairman, supervisor, Pennsylvania, Middletown, Pa.
- 3:30 p. m. Paper on The Effect of Modern Locomotives on the Length of Turnouts, by H. J. Pfeiffer, chief engineer, Terminal Railroad Association of St. Louis, St. Louis, Mo.
- 4:00 p. m. Adjournment to visit exhibit Track Supply Association.
- 8:00 p. m. Illustrated Address on Our Modern Track Construction and Its Development, by J. V. Neubert, engineer maintenance of way, New York Central, New York City.

Wednesday, Sept. 22

- 9:30 a. m. Report of Committee on Track Joints and Their Maintenance, C. W. Baldrige, chairman, assistant engineer, Atchison, Topeka & Santa Fe, Chicago.
- 10:30 a. m. Address on The Care and Selection of Cross Ties, by John Foley, forester, Pennsylvania, Philadelphia, Pa.
- 11:30 a. m. Address by C. A. Morse, chief engineer, Chicago, Rock Island & Pacific, Chicago.
- 12:30 p. m. Adjournment.
- 2:00 p. m. Report of Committee on the Rearrangement of Track Work to Promote Uniform Forces Throughout the Year, J. Clark, chairman, supervisor, Baltimore & Ohio, Walkerton, Ind.
- 3:00 p. m. Address on Building Morale Among Maintenance of Way Forces, by J. S. Hyatt, general manager, Chicago, North Shore & Milwaukee, Chicago.
- 4:30 p. m. Adjourn to visit exhibit Track Supply Association.
- 6:30 p. m. Annual dinner of the Track Supply Association and the Roadmasters' Association.

Thursday, Sept. 23

- 9:30 a. m. Report of Committee on The Collection and Use of Cost Data by Supervising Forces, E. P. Hawkins, chairman, division engineer, Missouri Pacific, Osawatomie, Kan.
- 11:00 a. m. Business session.
Reports of officers and of committees.
Election of officers.
Selection of 1927 convention city.
Installation of officers.
Adjournment.
- 2:00 p. m. Trip by special train over the Illinois Central's terminal improvement and electrification work to Markham Yard.

Traffic News

Commercial Stocks of Anthracite and Bituminous Coal July 1

On July 1 stocks of bituminous coal in the hands of consumers amounted to approximately 39,000,000 net tons, according to reports received by the Bureau of Mines, Department of Commerce.

In comparison with June 1, 1924, when consumers still had 51,000,000 tons on hand out of the very heavy reserves accumulated in anticipation of a possible strike at the end of the 1923 wage agreement, the stocks on July 1, 1926, show a large decrease. In comparison with June 1, 1925 the present stocks show an increase of 1,000,000 tons.

When stocks of coal on different dates are compared, allowance must be made for changes in the rate of consumption. In the first quarter of 1926 bituminous coal was in demand to make good the deficit in household fuel caused by the anthracite strike, and the rate of consumption was abnormally high. At that rate the stocks on April 1 were sufficient to last 26 days. At the lower rate of consumption prevailing in May and June the stocks on July 1 were sufficient to last 34 days. Measured in days' supply the present reserve is slightly larger than that on June 1, 1925, which was sufficient to last 32 days.

In addition to the quantity in the hands of consumers on July 1, there were at least 174,000 tons of bituminous coal in producers' storage at the mines or at intermediate points en route to market, and 888,000 tons loaded in cars but unbilled at the mines.

The total quantity of bituminous railroad fuel coal on hand July 1, according to the American Railway Association, was 9,398,000 tons, sufficient at the current rate of consumption, to last 27 days. From April 1 to May 1, the railroads decreased their stocks by 704,000 tons. Beginning with the latter part of May, they began to rebuild their stocks and between May 1 to July 1, a total of 1,012,000 tons was added to storage.

Stocks of bituminous coal held by the railroads on representative dates have been as follows:

January 1, 1919.....	13,644,000	January 1, 1924.....	19,368,000
March 1, 1920.....	4,784,000	June 1, 1924.....	15,530,000
June 1, 1920.....	3,744,000	June 1, 1925.....	10,219,000
April 1, 1922.....	19,843,000	April 1, 1926.....	9,090,000
Sept. 1, 1922.....	4,401,000	May 1, 1926.....	8,386,000
July 1, 1923.....	10,667,000	July 1, 1926.....	9,398,000

The Florida Exposition

The Florida Exposition Company, of which the president is John W. Martin, governor of the state, announces that an exposition, designed to advertise the character and resources of the state is to be organized with a view to putting the necessary information into the prominent cities of 30 states, by the use of special exhibition trains, to be started from Jacksonville, northward, on or about November 22.

There are to be five trains of 10 cars each, and arrangements have already been made by Bird M. Robinson, Washington, D. C., director general of the exposition, with the Pullman Company, for the necessary cars. Each train will have one baggage car, with a small power plant; one motion picture car, five cars devoted to general and individual exhibits of fruits, vegetables, natural resources and manufactured articles; two sleeping cars, and a dining car.

The corporation has only a nominal capital and will serve without charge or profit, the necessary funds being expected from subscriptions and from the sale of exhibition space. The territory to be traversed includes all of the 30 states north of Florida and as far west as Missouri, Iowa and Minnesota.

The promoters of the exposition believe that the state of Florida is confronted with a powerful and widely extended opposition; not organized, perhaps, but seemingly acting in a concerted way. To meet this criticism it is proposed to "disprove the prevalent fiction."

Mr. Robinson has already received promises of very favorable rates from the railroads over which it is desired to send the advertising trains.

Commission and Court News

Interstate Commerce Commission

In connection with proposed changes in rates on imported iron and steel articles from Gulf ports designed to place the import and domestic rates on the same level, the Interstate Commerce Commission on August 25 approved an increase by lines east of the Mississippi River in the rate to St. Louis from New Orleans and other Gulf ports, excluding Texas gulf ports, and also upheld increased rates from New Orleans to Little Rock and Pine Bluff, Ark. The commission disapproved proposed increases in rates from the Texas ports to St. Louis and found not justified the proposed restriction of import class rates so that fifth class rates would not apply from the Texas ports to the destinations involved. Reasonable rates on this traffic were prescribed for the future.

Court News

Revocation of Railroad's Duty to Maintain Private Crossing

The New Jersey Court of Errors and Appeals holds that where a private farm crossing was changed by the owners with the railroad's consent into a public crossing, an order of the Public Utility Commissioners closing it as dangerous revoked the statutory obligation on the railroad company to maintain the private crossing.—*Hollinshead v. Atlantic City Ry. Co.* (N. J.) 131 Atl. 915.

Width of Right of Way Available to Foreign Railroads under North Carolina Statute

The North Carolina Supreme Court holds that the statutory presumption of the width of a right of way which a railroad may acquire under N. C. Comp. St., sections 440, 1733, does not apply to a foreign railroad company, and a Tennessee railroad corporation could only take "such land as may be wanted" under its charter, the law of Tennessee specifying no maximum or minimum right of way.—*Griffith v. Southern* (N. C.) 131 S. E. 413.

Solicitation of Business and Employment of General Counsel Not "Doing Business" in State

The Circuit Court of Appeals of District of Columbia holds that a railroad which has no tracks in the District, and whose sole activity therein is the solicitation of traffic for outside and the employment of a general counsel, is not "doing business" within the District under the D. C. Code, section 1537, and service of process on its soliciting agent there was ineffective. It was held immaterial that the agent had for sale interchangeable mileage books good for travel over any railroad in the United States.—*Cancelino v. S. A. L.*, 12 F. (2d) 166.

Recovery of Freight Undercharges from Shipper

Bills of lading provided that the owner or consignor should pay the freight and other charges, before delivery, if required, and were signed by "shipper," who, unless the contrary appears, is presumably the consignor. In an action for undercharges, the New Jersey Supreme Court holds that nothing appearing in the bills of lading to indicate that the defendant was not the owner or consignor, or that the railroad was to look to some other person as owner or consignor if it could not collect the freight from the consignee, there was an implied promise on defendant's part to pay the freight, and the fact that the shipment was delivered by the railroad's error without full payment of the freight, or that the consignee was allowed to become insolvent before the railroad sued defendant, did not prevent the railroad from recovering the undercharge from the consignor.—*N. Y. C. v. Singer Mfg. Co.* (N. J.) 131 Atl. 111.

Foreign Railway News

British Firm to Build Locomotives for Australia

Sir W. G. Armstrong, Whitworth & Co., Ltd., Newcastle-on-Tyne, have been awarded a contract for the building of 25 heavy freight locomotives and tenders for the Queensland Government Railways. These locomotives, which will be built at the Scotswood Works, Newcastle-on-Tyne, will be shipped to Brisbane fully erected and in running order in accordance with this builder's usual practice.

Federated Malay States Railway Report for 1925 Shows Financial Success

The Federated Malay States Railways enjoyed a successful year financially in 1925, according to the annual report of J. W. Spiller, acting general manager and chief engineer. The period which the report covers was one of great prosperity in the tin and rubber industries, the most important in British Malaya. This prosperity is reflected in the increased railway tonnages and receipts, the latter, from all sources, totaling £2,186,724; an increase of 15.63 per cent over 1924. Passenger receipts show an increase of 16.41 per cent over 1924, and amounted to £790,522. The railways carried 1,768,000 more passengers than in 1924, the greatest number since the "boom" year of 1920.

Southern to Extend Electrification

Following the completion of the Southern's recent suburban electrification program, which, in the main, comprised the old Southeastern & Chatham lines from Victoria, Charing Cross and Cannon street stations, the railroad has announced a further large extension of electrification in the South London area, work to be started at once. The lines to be electrified include the whole of the old London, Brighton & South Coast suburban area, and a small portion of the Southeastern. Plans call for the equipping of 127 single track miles of existing "overhead" system with d. c. third rail, as used on the other electrified lines of the Southern, together with the laying of 105 single track miles at present operated by steam; a total of 232 track miles exclusive of sidings. The work will cost £3,750,000.

Record Traffic for South African Railways Reported

Preliminary figures on the operation of the South African railways for the fiscal year ended March, 1926, show new record totals for freight and passenger traffic and illustrate the high level of prosperity maintained in the Union of South Africa during the past year. This statement is made in a report to the Department of Commerce from Assistant Trade Commissioner Kilcoin, who has headquarters at Johannesburg. Revenue freight traffic (other than coal) conveyed during the year totaled 11,373,643 tons, an increase of 2,319,240 tons over the preceding fiscal period. Heavy tonnage gains were made in practically all the leading commodities, maize advancing from 610,628 tons to 1,466,148 tons; sugar cane from 715,185 tons to 1,380,683 tons, and flour, meal and bran from 715,185 tons to 1,238,683 tons.

Passengers carried on all lines during the fiscal year totaled 76,282,587, representing an increase of 5,450,398 over the preceding twelve months.

Twenty Persons Killed in

Derailment Near Hannover, Germany

About 20 persons were killed and three injured on August 19 when a Berlin-Cologne express passenger train was derailed near Hannover, Germany. The accident is charged to some unknown persons who removed the rail fastenings from an entire rail. Traveling at a speed of 50 miles an hour through a heavy rain, the locomotive when derailed rolled over an embankment, carrying several coaches with it. The deaths occurred in the sixth coach, which was telescoped by the following car. At a short

distance from the wreck, officers discovered the bolts, nuts and spikes removed from the rail, carefully laid in a pile.

Immediately following the derailment of the express, Herr Dormmuller, general director of railways, who investigated the wreck, posted notice of a reward of 25,000 marks for the capture of the wreckers. The director also announced that bloodhounds brought to the wreck were unable to pick up any trail. The only clues discovered near the wreck were several wrenches and a pipe. It is believed that at least four express trains passed over the boltless rail before the accident occurred. So alarming has been the frequency of wrecks in the past few weeks that Herr Dormmuller recently called a meeting of the operating department heads of the German Railroads to discuss means to protect the lives of passengers.

Miscellaneous

The Department of Commerce has received the following reports from its agents in various parts of the world:

Connection of Salvador with Guatemala by the International Railways of Central America has progressed considerably during the past few months. On the San Salvador-Teixistepeque line, a total distance of about 57 miles, about 35 miles of track have been laid, and it is expected that the line will be complete September 15. On the Santa Ana-Ahuachapan line (27 miles long) 50 per cent of the work has been completed, and it is estimated that the work will be completed by the end of February, 1927. On the Santa Ana-Guatemalan border line, via Teixistepeque, 38 miles long, 60 per cent of the work has been finished, and it is estimated that it will be entirely completed by June, 1927.

A loan of \$2,600,000 is being negotiated for the prolongation of the National Chiriqui Railway from Puerto Armuelles (Rabo de Puerto) to Concepcion, Panama. Bids for the construction of the railway were opened August 12.

The National Railways of Mexico have abandoned the 20 and 30 per cent surcharges that were put into effect on railway freight handled by the National Lines during the De la Huerta Revolution. The 15 per cent surcharge remains.

CHARLES M. WYNNS has resigned as general traffic manager of the Fruit Dispatch Company, New York, to accept the position of vice-president of the Northern Refrigerator Car Company with general offices at Cudahy, Wis. Louis M. Porter, traffic manager of the Fruit Dispatch Company, at New York, will succeed Mr. Wynns. W. M. Penick, traffic manager at New Orleans, will succeed Mr. Porter as traffic manager at New York. B. M. Johnston has been appointed assistant traffic manager at New Orleans, the position of traffic manager in that city having been abolished.



Boston, Revere Beach & Lynn (Narrow Gauge) Train at Bath House Station, Revere, Mass.

Equipment and Supplies

Locomotives

THE GULF, MOBILE & NORTHERN has ordered 2 Decapod type locomotives from the Baldwin Locomotive Works.

THE RICHMOND, FREDERICKSBURG & POTOMAC is now inquiring for 4 Pacific type and 2 six-wheel switching locomotives. In the *Railway Age* of August 7 this company was reported as contemplating the purchase of 6 locomotives.

THE NEW YORK CENTRAL has ordered 20 heavy freight (2-8-4) type locomotives from the Lima Locomotive Works. These locomotives are for service on the Boston & Albany and they will be duplicates of the A1 locomotive. The New York Central has also placed an order for 25 type K-5A Pacific type, heavy passenger locomotives with the American Locomotive Company for service as follows: Boston & Albany, five; Michigan Central, 10; Pittsburgh & Lake Erie, 10. This is in addition to the 10 for the Cleveland, Cincinnati, Chicago & St. Louis, ordered from the American Locomotive Company, as reported in the *Railway Age* of August 21.

Freight Cars

THE INLAND WATERWAYS CORPORATION, Washington, D. C., has ordered 40 gondola cars from the Tennessee Coal, Iron & Railroad Company. Inquiry for this equipment was reported in the *Railway Age* of May 15 under the name of the Mississippi Warrior Service, Federal Barge Line.

Passenger Cars

THE MANILA RAILROAD contemplates buying 12 passenger coaches.

THE CHICAGO & NORTH WESTERN is inquiring for two baggage-dormitory cars.

THE GULF, MOBILE & NORTHERN is inquiring for two steel underframes for passenger cars.

Iron and Steel

THE BOSTON & MAINE is inquiring for 800 tons of steel for bridges.

THE BALTIMORE & OHIO has ordered 300 tons of steel for use in Chicago, from the McClintic-Marshall Company.

THE ATLANTIC COAST LINE has ordered 32,000 tons of rail from the Tennessee Coal, Iron & Railroad Company.

THE PENNSYLVANIA has given an order for 600 tons of steel for structures in Ohio and Indiana, to the McClintic-Marshall Company.

THE ERIE has ordered steel for several small bridges; the contracts let include 300 tons to the American Bridge Company and 300 tons to the Fort Pitt Bridge Company.

THE GREAT NORTHERN has divided an order for 3,600 tons of structural steel for its 1927 bridge requirements, between the American Bridge Company and the Milwaukee Bridge Company.

Machinery and Tools

THE NEW YORK CENTRAL has ordered a radius link grinder from Manning, Maxwell & Moore, Inc.

THE MISSOURI PACIFIC has ordered a 2-in. double bolt cutter from Manning, Maxwell & Moore, Inc.

THE INTERNATIONAL-GREAT NORTHERN has ordered a 24-in. by 14-ft. heavy motor driven lathe from Manning, Maxwell & Moore, Inc.

THE ATLANTIC COAST LINE has ordered a diamond motor driven swing frame grinding machine from the Niles-Bement-Pond Company.

THE LOUISVILLE & NASHVILLE has ordered a Morris 20-in. by 14-ft. motor driven engine lathe from the Niles-Bement-Pond Company.

THE NATIONAL TUBE COMPANY, Pittsburgh, Pa., has ordered a 36-in. by 12-ft. time saver planer from the Niles-Bement-Pond Company.

THE CHICAGO & NORTH WESTERN has ordered a Ransom No. 131 motor driven dry grinding machine, from the Niles-Bement-Pond Company.

THE KANSAS CITY SOUTHERN has ordered a 24-in. heavy duty shaper and an 18-in. by 10-ft. engine lathe from Manning, Maxwell & Moore, Inc.

THE WABASH has ordered a 26-in. heavy duty drill, a heavy motor driven grinder and a triple head bolt cutter from Manning, Maxwell & Moore, Inc.

THE ATCHISON, TOPEKA & SANTA FE has ordered a 300-ton hydraulic press and a 90-in. Putnam journal lathe from Manning, Maxwell & Moore, Inc.

THE COLUMBIA STEEL & SHAFTING COMPANY, Rankin, Pa., has ordered a Stockbridge "Worcester" 26-in. motor driven shaper from the Niles-Bement-Pond Company.

THE SEABOARD AIR LINE has ordered a 30-in. by 14-ft. engine lathe, a 20-in. by 8-ft. engine lathe, a 32-in. heavy duty shaper and a 34-in. heavy service drill from Manning, Maxwell & Moore, Inc.

THE CHICAGO, BURLINGTON & QUINCY has ordered a 36-in. by 14-ft. engine lathe, an 18-in. by 12-ft. engine lathe, a 36-in. by 12-ft. planer and a 36-in. heavy service drill from Manning, Maxwell & Moore, Inc.

Signaling

THE BALTIMORE & OHIO has ordered from the Union Switch & Signal Company material for an electric interlocking at Elsmere Junction, Del.

THE ATLANTIC COAST LINE has ordered from the Union Switch & Signal Company an electro-mechanical interlocking for Albany, Ga.; the equipment includes 16 mechanical levers and 3 electric lever units.

THE NORFOLK & WESTERN has ordered from the Union Switch & Signal Company material for automatic block signaling, single track, between Roanoke, Va., and Winston-Salem, N. C., 122 miles. The signals will be of the position-light type, 360 of them. A new pole line will be built for the wires, and the transmission line will be 60-cycle, 4,400 volt, three-phase. This line will be used to light stations, switch lamps and highway crossing signals, and also to run pumps.



Supply Trade News

J. N. Joyce has joined the sales force of the Cleveland, Ohio, office of the Bridgeport Brass Company, at 2017 Superior Viaduct.

The Ingot Iron Railway Products Company has removed its general office from 1236 Peoples Gas building, Chicago, Ill., to Middletown, Ohio.

O. R. Lane, assistant to F. W. Deppe, who represents the Reading Iron Company, in the St. Louis territory, has opened an office for the Reading Iron Company in Kansas City, Mo., at 721 Pioneer Trust building.

Richard Sanderson, vice-president in charge of sales of the Standard Steel Works Company, Philadelphia, Pa., has resigned, effective September 1. Mr. Sanderson will enter the automotive field and will establish his own business under the name of Sanderson Motors, with headquarters at San Antonio, Tex., distributing Hudson and Essex automobiles in the southern half of Texas. Mr. Sanderson was born on July 30, 1888, at Lynchburg, Va., and was educated at Worcester Polytechnic Institute, leaving there in 1910. He began work as an apprentice on the Seaboard Air Line, later finishing his apprenticeship at the Baldwin Locomotive Works.



Richard Sanderson

In 1912 he entered the New York office as assistant representative of the sales department for both the Baldwin Locomotive Works and the Standard Steel Works Company, and on April 1, 1919, he was made manager of the New York office for both companies. He was elected vice-president in charge of sales of the Standard Steel Works Company in December, 1920, and was transferred to Philadelphia.

H. T. Armstrong has been appointed manager of sales of the Montreal Locomotive Works, Ltd., and the Canadian Steel-Tire & Wheel Company, Ltd., with office in the Dominion Express building, Montreal, Quebec.

The Cook Paint & Varnish Company, Kansas City, Mo., has bought the property formerly owned by the American Cotton Oil Company in Houston, Tex., including a five-acre tract of land and a three-story brick building which it will use for its Gulf Coast plant.

H. F. Darby, Jr., 1700 Walnut street, Philadelphia, Pa., has been appointed direct factory representative in the Philadelphia district of the Kuhlman Electric Company, Bay City, Mich. For more than 20 years Mr. Darby was with the Cutter Electrical & Manufacturing Company and during the last six years he was sales manager of that organization.

The W. H. Worden Company, San Francisco, Cal., has been appointed distributor of the McMyler-Interstate Company, Cleveland, Ohio, in the states of California, Arizona and Nevada. C. F. Wolfradt, formerly Pacific Coast branch manager for the McMyler-Interstate Company, became affiliated with the Worden Company on August 1. The Hofius Steel & Equipment Company, Seattle, Wash., has been appointed distributor in the states of Washington, Oregon and Idaho, and Thurman G. Frazee of Houston, Tex., in the

state of Texas. Mr. Frazee has for many years furnished equipment and supplies to the industrial companies and railroads of the southwest.

George B. Powell has been appointed sales agent of the **Railway Steel-Spring Company**, with headquarters in the Syndicate Trust building, St. Louis, Mo., succeeding **George M. Burns**, deceased. Mr. Powell has been in the service of the company for many years in both the mechanical and sales departments, for the past few years having been assistant sales agent at St. Louis.

The business of the **Leslie Company**, Lyndhurst, N. J., manufacturers of Leslie pressure regulators and reducing valves, has been bought by **S. Inglis Leslie** and a newly organized company known as the **Leslie Co.**, with the following officers: **S. Inglis Leslie**, president; **J. J. Cizek**, vice-president, and **J. M. Naab**, secretary and treasurer. In addition to the president and vice-

above, **J. J. Cizek**, who has been elected vice-president of the **Leslie Co.**, was born in Chicago, Ill., on January 1, 1883, and was educated in the public schools near Jackson, Minn. From 1898 to 1905 he was employed by the **Lake Shore & Michigan Southern**, and in the latter year he entered the service of the **Leslie Company**, being promoted to western manager at Chicago, Ill., in 1909, which position he held until elected to his present office. **J. M. Naab**, secretary and treasurer of the **Leslie Co.**, was born in New York City on February 1, 1892, and was educated in the parochial and public schools. Upon graduation from high school in 1909, he entered the service of the **Delaware, Lackawanna & Western** as clerk and stenographer, and continued in the employ of the traffic and operating departments of that company in various capacities, until he entered military service in 1917. From 1917 to 1919 he served as an enlisted man and rose to the rank of captain in the **A.E.F.**, being for more than a year assistant to general manager of transporta-



S. Inglis Leslie



J. J. Cizek



J. M. Naab

president, the following have been elected directors of the new company: **William L. Allison**, senior vice-president of the **American Arch Co.**; **F. A. Schaff**, vice-president of the **Superheater Co.**, and **Frederic E. Schluter**, president of **Schluter & Co., Inc.**, investment bankers. **S. Inglis Leslie**, president of the **Leslie Co.**, was born in Toronto, Ontario, on May 22, 1880, and was educated in the public schools. Following graduation from high school, he associated in the railway, marine and stationary machine supply business with his father, **J. S. Leslie**, and upon organization of the **Leslie Company** in 1905 became its secretary and treasurer, having been actively identified with the latter company until he purchased its business, as announced

tion at Tours, France. Upon discharge from military service, he re-entered the employ of the **Delaware, Lackawanna & Western** as special accountant and statistician in the operating department. In 1920 he left the railroad service to manage the New York office of a wholesale coal business, and since 1921 has been associated with the **Leslie Company**, for four years of which period he has been its assistant general manager, which position he leaves to become secretary and treasurer.

Stanley C. Bryant has been appointed district engineer in the Chicago office of the **General Railway Signal Company**, effective August 16. Mr. Bryant was born in London, Eng-



Articulated Tank Locomotive on the Andaluces Railway, Spain

land, on July 12, 1880, and was educated in the public schools of Chicago and Valparaiso University at Valparaiso, Ind. His first signal work was with the Taylor Signal Company at Buffalo, N. Y., in 1900. From 1901 to 1906 Mr. Bryant was employed on electrical construction and testing work by the Taylor Company and General Railway Signal Company. In 1906 he was transferred to the engineering department of the General Railway Signal Company at Buffalo, remaining in that department until 1908, when he was appointed signal inspector of the Chicago & Western Indiana. In March, 1909, Mr. Bryant became connected with the Bryant Zinc Company as signal engineer, which position he held until March, 1922, when he entered the service of the L. S. Brach Manufacturing Company as resident manager at Chicago. On January 1, 1925, he was appointed chief engineer of the National Transformer Company, remaining in that position until June, 1926.

Obituary

Frederick Sherwood Kretsinger, Evanston, Ill., chairman of the board of American Fork & Hoe Company, Cleveland, Ohio, died on August 22 at Cleveland from a heart attack. He organized the company in 1900, and retired as president in 1906, since then serving as chairman of the board.

George M. Burns, sales agent of the Railway Steel-Spring Company, with headquarters at St. Louis, Mo., died in that city on August 16, following a brief illness resulting from a paralytic stroke. He was born in Coshocton, Ohio, on August 25, 1858, and entered railway service in 1872, as a clerk on the Cincinnati, Hamilton & Dayton (now a part of the Baltimore & Ohio). During his railroad career, he was employed by the Cleveland, Cincinnati, Chicago & St. Louis; the Southern; the Pennsylvania and the Wabash. His connection with the latter road began in 1895, when he was made chief clerk to the vice-president, being subsequently promoted to superintendent of the Detroit division, with headquarters at Detroit, where he remained until August, 1906, when he resigned to accept the position of sales agent of the Railway Steel-Spring Company.

Trade Publications

RAILROAD SAND DRYING EQUIPMENT.—The Roberts & Schaefer Company, Chicago, has issued a 12-page bulletin which describes its various equipment for drying and handling locomotive sand, ranging from the simple stove driers to the automatic devices which eliminate practically all labor. The bulletin is copiously illustrated with views and plans showing the construction of the different devices.

PULVERZONE.—The CoKal Stoker Corporation, Wrigley building, Chicago, has issued a bulletin descriptive of its newest type of coal-burning equipment—the Pulverzone. This apparatus combines in one the three approved methods of burning coal: (1) Pulverized coal burning; (2) spread method, and (3) coking method. In this way the Pulverzone is able to burn the smaller lumps and fines in suspension as with powdered coal burning. The heavier coal falls down at the front, while the intermediate sizes are automatically spread over the rear section of the fuel bed. The standard coking method of the CoKal stoker is retained.

THE AMERICAN CABLE COMPANY, INC., New York, has issued a very interesting and attractive souvenir booklet on the recently completed world's greatest suspension bridge, that spanning the Delaware river between Philadelphia, Pa., and Camden, N. J. This booklet, which contains 48 pages, portrays graphically a picture of the progress of the work on this bridge from its beginning until the completion of the structure. The illustrations are supplemented by a number of interesting historic notes and facts in connection with the conception and construction of the bridge, and also by a statement of the part played in its construction by the American Cable Company and its affiliated company the Page Steel and Wire Company, Bridgeport, Conn.

Railway Construction

BALTIMORE & OHIO.—This company has awarded contracts totaling approximately \$117,400 as follows:

Fire protection facilities—Wicomico st. yard.	Baltimore	..... \$9,800	August Malthn, Baltimore.
Fire protection facilities—yard adjacent to Carey st.	Baltimore	..... 10,400	August Malthn, Baltimore.
One-story addition to warehouse.	Baltimore	..... 31,200	Frainie Bros. & Haigley, Baltimore.
Installation of four electric elevators in coal storage warehouse.	Philadelphia	..... 45,500	Otis Elevator Co., Baltimore.
Construction of frame extensions to engine-house.	Connellsville, Pa.	20,500	Milo R. Hanks, Cincinnati, O.

BOSTON & ALBANY.—Contracts have been awarded for the construction of concrete abutments for bridges at Dalton, Mass., and Hinsdale, Mass., to Daniel O'Connell's Sons, Holyoke, Mass. Another contract for changing a river channel at Chester, Mass., has been awarded to the same company. A contract calling for the reconstruction and alteration of bridges at Warren, Mass., has been awarded to the New England Construction Co., Springfield, Mass.

BOSTON & MAINE.—This company has started work on increasing the clearances in the Hoosac tunnel. The tunnel, a double track bore which was opened fifty years ago, has until recently proved adequate for car clearance. However, the larger furniture and automobile cars will not clear present dimensions and it has been found necessary to drop the floor two feet to clear them. The improvement when completed will provide a minimum clearance of 16 ft. 1 in. between the tunnel tracks and the trolley wire used in connection with electric operation. Studies of the improvements now under way show that it is necessary to lower only 4,000 ft. of the entire length to obtain the desired clearance since builders of the bore allowed for increased size of cars in most places. The work involves the taking up and relaying of approximately 7,806 ft. of track, with the necessary excavation and rebuilding of culverts to accommodate the track at its new and lower grade. Some 1,780 cu. ft. of rock will be blasted from the tunnel floor. The work also involves the excavation of 4,600 cu. yd. of rock ballast within the present tunnel, and an additional 60 cu. yd. to be gained by trimming the overhead rock. Outside the tunnel, rock excavation aggregating 1,145 cu. yd. and earth excavation totaling 380 cu. yd. is involved, while drainage work calls for a movement of approximately 4,000 yd. of assorted material. The estimated cost of the entire work is \$200,000.

CHICAGO & NORTH WESTERN.—This company is accepting bids for the construction of 8 car repair shop buildings at Proviso, Ill.

ILLINOIS CENTRAL.—A contract has been awarded to the Railroad Water & Coal Handling Company for the construction of a 600-ton demountable steel coaling station at 27th street, Chicago.

LOS ANGELES UNION STATION OF THE SOUTHERN PACIFIC.—This company has submitted plans to the California Railroad Commission for a union station at Los Angeles to be used jointly by the Southern Pacific, the Atchison, Topeka & Santa Fe and the Union Pacific. The total cost of the improvement is \$14,934,000 and includes \$2,071,000 for the station, \$370,000 for umbrella sheds and \$7,943,000 for necessary lands and improvements.

MISSOURI-KANSAS-TEXAS.—A survey is being made for an extension from San Antonio, Tex., southward to the Texas-Mexican, a distance of approximately 100 miles.

MISSOURI PACIFIC.—Plans are being prepared for the construction of a repair and machine shop at Poplar Bluff, Mo.

MISSOURI PACIFIC.—This company has filed an application with the Interstate Commerce Commission for permission to

construct an extension from a branch line at Hot Springs, Ark., 11.82 miles northwest to serve 250,000 acres of virgin yellow pine timber in Perry, Yell and Montgomery counties, Arkansas.

NEW YORK CENTRAL.—An expenditure of \$5,000,000 will be made over a period of two years to relocate and develop the West Shore railroad between South Schenectady and Selkirk. Work costing \$2,155,000 is now being inaugurated.

A third and fourth track will be added, and extensive grade reduction and relocation of many miles of track will be included in the program. The remaining \$2,835,000 of the \$5,000,000 will be spent improving traffic facilities, including construction of a large interchange yard between the West Shore and the Delaware & Hudson at Voorheesville.

NEW YORK, CHICAGO & ST. LOUIS RAILWAY.—This company, the holding company of the proposed Van Sweringen system, has renewed its application to the Interstate Commerce Commission for authority for the construction of a line from Valley Crossing to Gregg, Ohio, 63 miles, as a connecting link between the Chesapeake & Ohio and the Hocking Valley. The original application was denied by the commission in connection with its denial of the original merger application, without prejudice to its renewal by the Chesapeake & Ohio. The new Nickel Plate company now says it is desirable that its corporate existence be maintained and that the new line be constructed by it but that it has entered into an agreement with the C. & O., which assures its operation as a part of the C. & O.-Hocking Valley system, and which provides that the line be turned over entirely to the C. & O., in the event of failure within four years to make effective the proposed unification of the Nickel Plate, C. & O., Pere Marquette and Erie.

NORTH LITTLE ROCK VIADUCT DISTRICT.—A contract has been awarded by this association to the Kelliher Construction Company, Little Rock, Ark., for the construction of a 1,857-ft. reinforced concrete viaduct to carry Main street in North Little Rock over the tracks of the Missouri Pacific and the Chicago, Rock Island and Pacific. The cost is estimated at \$305,997 and the railroads will share in the cost.

PENNSYLVANIA.—This company has awarded contracts totaling approximately \$397,000 as follows:

Paving viaducts.....	Louisville, O.....	Elmer Vogt Paving Co., Massillon, O.
Laying pipe line....	Marysville, Pa....	\$22,000 Ira J. Reighter Cons. Co., Harrisburg, Pa.
Construction of U. G. bridge on line of Crescent boulevard.	Merchantville, N. J.	28,000 James McGraw Co., Philadelphia, Pa.
Masonry for pit for 100-ft. turntable.	Chicago	30,000 Battey & Kipp, Chicago.
Grading masonry and rip rap for second main track.	River Ridge to Sedgewick, Pa.	38,000 Sims Cons. Co., Inc., Philadelphia.
Construction of O. H. bridge and viaduct to eliminate grade crossing.	Vanport, Pa.	50,000 Milliron Cons. Co., DuBois, Pa.
Reconstruction of Mercer ave. O. H. bridge.	Sharpsville, Pa....	57,000 Milliron Cons. Co., DuBois, Pa.
Grading, masonry, drainage and track work for extension of passing siding.	Miller, O.	78,000 Ferguson & Edmondson Co., Pittsburgh.
Grading, masonry, drainage and track work for extension of passing siding.	Broadacre, O.	94,000 T. J. Foley Co., Pittsburgh.

WEST PITTSFORD-EXETER.—This company has been authorized by the Interstate Commerce Commission to construct a 4-mile line from a connection with the Delaware, Lackawanna & Western at Susquehanna avenue, West Pittston, Pa., to a point between the Sullivan highway and the Susquehanna river. It is planned to electrify the line at some future date. Total cost, including electrification, is estimated at from \$925,000 to \$1,000,000.

WABASH.—This company is accepting bids for the construction of a reclamation building at Decatur, Ill.

EMPLOYEES OF THE WISCONSIN division of the Chicago & North Western gave a picnic on Sunday, August 22, at Des Plaines, Ill., to which they invited the public. Invitations announcing the picnic were distributed on Chicago suburban trains three days in advance.

Railway Financial News

BOSTON & MAINE.—*Rehearing on Reorganization Plan Refused.*—The Interstate Commerce Commission denied on August 20 the petition of Edmund W. Codman, of Boston, a minority stockholder, requesting a rehearing on the reorganization plan, approved July 8 by order of Division 4. Mr. Codman filed his petition on August 6 for rehearing before the commission and for suspension of the order.

BOSTON & MAINE.—*Stock Sale.*—Under order of the Massachusetts Department of Public Utilities, 14,828 shares of 7 per cent, prior preference stock issued under order of May 21, were to be sold at public auction at North Station, Friday. This stock is part of the issue of 130,000 shares offered in connection with the re-organization plan to holders of the road's stock outstanding, of which but 115,172 shares were taken up. The auction is of the balance. Stipulation is made that sale shall not be made at less than \$100 per share and accrued dividends.

CENTRAL OF NEW JERSEY.—*Equipment Trusts.*—Blair & Co., in association with the Chase Securities Corporation, were the successful bidders for the issue of \$2,670,000 4½ per cent equipment trust certificates for which the railroad asked competitive bids.

CHICAGO & ERIE.—*Tentative Valuation.*—The Interstate Commerce Commission's tentative valuation report places the final value for rate-making purposes at \$21,215,175 for the common carrier property owned and used as of 1918. The outstanding capitalization as of valuation date was \$33,770,547, and the investment in road and equipment, as stated in the company's books \$32,598,115, which the commission's report says should be re-adjusted to \$28,318,962. The cost of reproduction new was reported as \$21,007,590 and cost of reproduction less depreciation as \$16,842,823.

CHICAGO, MILWAUKEE & ST. PAUL.—*Postponement of Sale Asked.*—Attorney Nathan L. Miller of New York, in a brief filed in the United States District Court at Chicago, on August 23, in behalf of the bondholders' defense committee, headed by Edwin C. H. Jameson, president of the Globe & Rutgers Fire Insurance Company, asked for the postponement of the sale of the Chicago, Milwaukee & St. Paul until Congress has had an opportunity to pass the railway refunding bill under which the road's \$55,000,000 debt to the government could be extended. The legislation that is being sought, the brief states, might enable the company to rehabilitate itself to the extent that a sale may not be necessary. Other recommendations were that a thorough examination of the Kuhn, Loeb & Co. re-organization plan be made before the date of the sale, that the upset prices for the various properties of the railroad include \$80,000,000 for the Puget Sound, \$150,000 for other properties subject to the general mortgage funds and \$20,000,000 for unmortgaged property, and that changes be made in the decree of foreclosure and sale to permit competitive bidding by independent concerns, syndicates or combinations.

The brief asked that the delay be at least until March 4, 1927, when Congress will have adjourned. By such postponement, it is argued, the government will benefit to a greater extent on its outstanding loan to the railroad. By the sale order, it is contended, holders of securities in the Puget Sound investment have been placed on the same footing as other creditors.

DENVER & RIO GRANDE.—*Appeal in Suit.*—George Tracy Rogers and other minority stockholders who recently lost their suit in the New York courts against the estate of George J. Gould, Edward T. Jaffery and others for an accounting of \$200,000,000 have entered an appeal against the adverse decision of Justice George V. Mullan of the Supreme Court.

ERIE.—*Equipment Trust.*—This company has been authorized by the Interstate Commerce Commission to assume obligation and liability for \$356,000 of equipment trust certificates to be issued by the Bank of North America & Trust Company by

agreement dated August 16 last and sold at not less than 98 per cent of par and accrued dividends.

HOCKING VALLEY.—Notes.—This company has been authorized by the Interstate Commerce Commission to issue \$6,000,000 of 5 per cent secured gold notes, and to pledge as collateral \$7,500,000 of general mortgage bonds, Series B.

MISSOURI-KANSAS-TEXAS.—Opposition to Acquisition by Kansas City Southern.—R. C. Duff, president of the Waco, Beaumont, Trinity & Sabine, has issued a statement opposing the application of the Kansas City Southern, filed with the Interstate Commerce Commission on July 24, for authority to acquire stock control of the Missouri-Kansas-Texas, claiming that it is a menace to Texas, is not made with regard for public interest, and that the Kansas City Southern is 'identified with the development of the industrial life of Texas.

Mr. Duff states that although the Missouri-Kansas-Texas is in favor of extension, the interests controlling the Kansas City Southern do not favor new construction and are endeavoring to force the abandonment of lesser lines.

"The Missouri-Kansas-Texas owns stock control of, and the Missouri-Kansas-Texas of Texas operates under lease, the Texas Central Railroad. The Texas Central occupies the doorway to one of the most important undeveloped areas of Texas. This railroad extends from Waco in a northwesterly direction 268 miles to the edge of the plains at Rotan in Fisher County, and has an important branch from De Leon to Cross Plains, 40.6 miles in length. It is thereby given the call on development toward the west in the great and rich area south of the Santa Fe and north of the Texas & Pacific, including the counties of Scurry, Borden, Dawson, Gaines, Lynn, Terry, Yoakum, Andrews and Martin. In some of the counties mentioned there does not exist a single mile of railroad. Waco is the natural gateway to that region and the Missouri-Kansas-Texas will fail to fulfill the manifest function and duty of the Texas Central, not only to the section described, but to Waco, if the Texas Central be not extended so as to serve and develop that territory.

"The former ownership and management of the Missouri-Kansas-Texas was not unmindful of this situation nor of the close relationship existing between the industrial life of the territory northwest of Waco and that southeast of Waco. They planned not only to extend the Texas Central west of Rotan, but in effect for a continuation of the line southeast from Waco to a connection with the properties then owned by the Missouri-Kansas-Texas of Texas in southeast Texas now owned by my company, the Waco, Beaumont, Trinity & Sabine, viz., the Beaumont & Great Northern, extending from Weldon to Livingston, and the old Trinity & Sabine, extending from Trinity to Colmesneil, including ultimately an extension of the Beaumont & Great Northern from Livingston to Beaumont and Port Arthur. The results would have been of tremendous benefit both to the Missouri-Kansas-Texas and the public. As a railroad extending from Port Arthur to the plains, bisecting the state diagonally across its center, the Texas Central would have emerged out of branch line class into a continuous, consistent, short, direct trunk line from the Gulf to the plains, equal in importance to any railroad in Texas.

"Unless the Kansas City Southern is willing to guarantee the developments of the Texas Central, according to the interests and requirements of the public, the public should insist before the Interstate Commerce Commission that if the Commission is disposed to grant to the Kansas City Southern the right to acquire control of the Missouri-Kansas-Texas, such right should be granted only upon condition that the Missouri-Kansas-Texas shall either construct extensions of the Texas Central according to the interests of the public, or relinquish title of the Texas Central to other interests who are willing to do so."

MONONGAHELA.—Tentative Valuation.—A final value for rate-making purposes of the property owned and used for common carrier purposes is placed at \$9,360,000 as of 1916 in a tentative valuation report by the Interstate Commerce Commission. The cost of reproduction now is estimated at \$8,612,841 and cost of reproduction less depreciation at \$7,662,060. The carrier's capitalization as of valuation date is reported as \$7,250,645 and the book investment in road and equipment, including land, as \$11,637,128 which the commission's report says should be re-adjusted to \$10,495,666.

NEW YORK CENTRAL.—Lease.—This company has filed with the Interstate Commerce Commission application to lease the Hudson River Connecting Railroad for a term of 99 years and thereafter for further terms of 99 years in perpetuity. The New York Central first was authorized to lease the property for a term of one year from November 14, 1924, and this lease was renewed for another year with the commission's approval. The present lease expires November 14. The applicant states that the proposed long-term lease has been authorized by the respective boards of directors of both carriers.

NEW YORK, CHICAGO & ST. LOUIS.—Hocking Valley Minority Protests Connection.—Minority stockholders in the person of John S. Stanton, represented by E. C. Bailly of Hornblower, Miller & Garrison, on August 18 filed with the Interstate Commerce Commission a protest against the Van Sweringen's proposal to construct a 63-mile line connecting the Hocking Valley and the Nickel Plate. The petition says that, since it appears that the new line is to be constructed with the funds of the C. & O. and is actually to become the property of the Nickel Plate only in case of a merger, no good reason exists for considering this application apart from the general merger plan.

PEARL RIVER VALLEY.—Trackage Rights.—The Interstate Commerce Commission has issued a certificate authorizing this company to operate under trackage rights a railway line recently built by the Goodyear Yellow Pine Company from Crosby, Miss., to a point west of Poplarville, 8 miles. The Pearl River Valley derives most of its revenue from the transportation of the lumber company's products. Its present line extends from a connection with the New Orleans & Northeastern at Nicholson to Crosby, about 25 miles.

TENNESSEE CENTRAL.—Equipment Financing.—This company has applied to the Interstate Commerce Commission to issue \$675,000 of 5 per cent equipment trust certificates to be sold to Roosevelt & Son, New York City, at 99.05, the highest bid received for the issue. The proceeds will be applied to the purchase of equipment costing \$696,252, including four mountain-type locomotives, 100 steel hopper cars, 100 steel gondola cars, 50 stock cars, 25 flat cars, and 2 baggage cars. The certificates will bear date of August 1, 1926, and will mature in 15 equal annual installments of \$45,000 each from August 1, 1927, to and including August 1, 1941.

WARRIOR RIVER TERMINAL.—Control.—The Interstate Commerce Commission has approved the application by the Inland Waterways Corporation for permission to acquire control of the Warrior River Terminal Company which was recently authorized to acquire that portion of the former Ensley Southern extending from Ensley Junction to Birminghamport.

WHEELING & LAKE ERIE.—Bonds.—This company has been authorized by the Interstate Commerce Commission to issue \$2,000,000 of refunding mortgage gold bonds, series B, to be sold at not less than 94 per cent of par or, pending sale, to be pledged as collateral for short term notes.

Average Price of Stocks and Bonds

	Aug. 24	Last Week	Last Year
Average price of 20 representative railway stocks	100.25	100.13	87.51
Average price of 20 representative railway bonds	97.55	97.69	91.35

Valuation Reports

The Interstate Commerce Commission has issued final valuation reports, placing the final value for rate-making purposes of the property owned and used for common carrier purposes, as of the respective valuation dates, as follows:

Final Reports		
East Jersey Railway & Terminal	\$364,390	1916
Manistee & Northeastern	2,312,325	1919
Springfield Terminal	60,000	1916
Kankakee & Seneca	800,000	1915
Sand Springs	646,323	1918
Pacific Coast	1,765,160	1916
Gulf & Northern	300,000	1919
San Luis Southern	303,090	1919

Railway Officers

Financial, Legal and Accounting

A. A. McLaughlin will on September 1 voluntarily retire as general solicitor of the railroad administration and assistant director general of railroads and will resume general practice of law at Des Moines, Iowa. He will remain temporarily with the railroad administration as special counsel handling important litigation assigned to him. **Sidney F. Andrews**, of St. Louis, Mo., is appointed general solicitor and assistant director general effective the same date. Mr. Andrews was for fifteen years general attorney and assistant general solicitor of the Illinois Central at Chicago and for four years associated with Judge Baxter, of Nashville, Tenn., in charge of all Interstate Commerce Commission litigation for the southeastern railroads. At the end of federal control, March 1, 1920, he was appointed assistant regional counsel for the railroad administration at St. Louis and in April, 1921, was called to Washington and appointed general attorney for the railroad administration.

Operating

J. D. Woodroof, who has been appointed superintendent of car service of the Norfolk & Western, with headquarters at Roanoke, Va., was born on November 9, 1874, in Amherst



J. D. Woodroof

county, Va., where he received a public school education. His railroad experience began on September 1, 1889, when he entered the service of the Norfolk & Western as an office boy in the office of the superintendent of motive power. He was transferred on March 1, 1891, to the office of the car accountant as record clerk, and held that position until February 1, 1902, when he was promoted to the position of chief clerk. On July 1, 1917, he was promoted to car accountant, in which capacity he served until his recent appointment as superintendent of car service.

H. R. Gibson, division engineer of the Baltimore & Ohio, with headquarters at Connellsville, Pa., has been promoted to superintendent, with headquarters at Newark, Ohio.

C. E. Alderson has been appointed assistant to the superintendent of the Chesapeake & Ohio, with headquarters at Newport News, Va., effective August 18, 1926, and to continue during the period of the heavy tidewater coal movement.

Traffic

J. B. Hilton, chief clerk to the president of the St. Louis-San Francisco, has been promoted to industrial commissioner, with headquarters at St. Louis, to succeed **G. W. Green**, deceased.

W. A. Kittermaster, general agent of the freight department of the Canadian Pacific, with headquarters at Chicago, has been promoted to general western agent, with the same headquarters.

John Dunphy, assistant general passenger agent of the Pere Marquette, with headquarters at Detroit, Mich., has been promoted to general passenger agent, with the same headquarters, to succeed **W. E. Wolfenden**, deceased.

K. D. McKenzie, general live stock agent of the Chicago, Rock Island & Gulf, has been appointed assistant general live stock agent of the Chicago, Rock Island & Pacific and the Chicago, Rock Island & Gulf, with headquarters at Fort Worth, Tex., the former position having been abolished.

Howard F. Fritch, who has been appointed passenger traffic manager of the Boston & Maine, with headquarters at Boston, Mass., was born in September, 1888, at



H. F. Fritch

Livingston, N. J. Mr. Fritch received his education at the Worcester Polytechnic Institute, from which he was graduated in 1910. In the same year he entered the service of the Eastern Massachusetts Street Railway Company and was subsequently appointed head of the schedule department and later served consecutively with the same company as statistician, superintendent of traffic and assistant general manager. Mr. Fritch went with the Boston & Maine in October, 1924, in the capacity of assistant to the chairman of the executive committee, he is also president of the Boston & Maine Transportation Company, the railroad's highway subsidiary, and he will continue to act in this capacity in addition to his new duties.

W. B. Lanigan, general freight traffic manager of the Canadian Pacific, with headquarters at Montreal, Que., has retired, effective September 1, and will be retained in an advisory capacity in connection with various inquiries before the Board of Railway Commissioners. The position of general freight traffic manager will be abolished. Mr. Lanigan was born on October 12, 1861, at Three Rivers, Que., and was educated at Stanstead College, Stanstead, Que. He entered railway service in 1879 as a telegraph operator on the Quebec, Montreal Ottawa & Occidental at Three Rivers, Mich., and from 1880 to 1881 he was a telegraph operator for the Montreal Telegraph Company at Montreal, Que., and the Hamilton Powder Company at Beloeil, Que. In 1881 he entered the employ of the Grand Trunk as a telegraph operator at Montreal, which position he held until September, 1884, when he was appointed a telegraph operator on the Canadian Pacific at Sharbot Lake and Tweed, Ont. From September, 1885, to October, 1886, he was relief agent at Toronto, Ont., and from October, 1886, to August, 1891, he was an agent at Claremont, Ont., Myrtle, Dundalk and Galt. From August, 1891, to December, 1900, he was traveling freight



W. B. Lanigan

agent, with headquarters at Toronto, and from the latter date until July, 1901, he was assistant general freight agent, with the same headquarters. On the latter date he was appointed general freight agent, with headquarters at Winnipeg, Man., which position he held until March, 1908, when he was promoted to assistant freight traffic manager, with the same headquarters. He held the latter position until September, 1918, when he was promoted to freight traffic manager, with headquarters at Montreal, which position he has held until his retirement.

Edwin P. Gardiner, assistant general freight agent of the Boston & Albany, with headquarters at Boston, Mass., has been appointed general freight agent in charge of solicitation, with the same headquarters. **Robert G. Henderson**, assistant to the freight traffic manager, has been promoted to assistant general freight agent at Boston, and **W. F. Callahan**, secretary to the freight traffic manager, has been appointed assistant to the freight traffic manager, with headquarters at Boston, succeeding Mr. Henderson.

Engineering, Maintenance of Way and Signaling

M. A. H. Scull, supervisor on the Central of New Jersey at Ashley, Pa., has been appointed assistant engineer, maintenance of way, with headquarters at Jersey City, N. J., succeeding **S. L. Mapes**, promoted to engineer maintenance of way.

Oscar S. Major, who has been appointed signal engineer of the Kansas City Southern, with headquarters at Kansas City, Mo., was born in Kansas City, on December 5, 1894, and received his early education in that city. He attended the University of Kansas, where he studied electrical engineering from 1913 to 1917. His first railroad experience came in 1916, when, during the summer, he worked as a laborer with a signal construction party on the Atchison, Topeka & Santa Fe Coast Lines. From June, 1917, to March, 1918, Mr. Major was employed as chief draftsman to the signal engineer of the Atchison, Topeka & Santa Fe at Topeka, Kans. After a short period of service in the army, Mr. Major re-entered the service of the Atchison, Topeka & Santa Fe in the signal construction department of the Eastern lines. In October, 1921, he went to the Kansas City Southern as signal draftsman signal engineer. He worked in this capacity until September, 1925, when he was appointed junior signal engineer in the Bureau of Signals and Train Control Devices, Interstate Commerce Commission, with headquarters at Washington, D. C. On April 16, 1926, Mr. Major was appointed senior signal engineer of the same bureau, which position he resigned on July 31, 1926, to take up his new duties with the Kansas City Southern.

J. R. Schick, engineer of branch lines on the Norfolk & Western, with headquarters at Roanoke, Va., has retired because of the age limit rule and the position has been abolished. **E. H. Roth**, crossing engineer, has been promoted to assistant engineer, with headquarters at Norfolk, Va., succeeding **J. W. Raitt**, who has been transferred to Bluefield, Va., to succeed **O. V. Parsons**, who has been transferred to the chief engineer's office at Norfolk, Va.

R. W. Gabriel, assistant division engineer of the Baltimore & Ohio, with headquarters at Washington, Ind., has been

promoted to division engineer, with headquarters at Newark, Ohio, succeeding **A. R. Carver**, who has been transferred to Connellsville, Pa., in place of **H. R. Gibson**, promoted. **J. H. Babbitt**, assistant on engineering corps at Garrett, Ind., has been promoted to assistant division engineer, with headquarters at Washington, Ind., to succeed Mr. Gabriel.

Obituary

Frederick Wann, general traffic manager of the San Pedro, Los Angeles & Salt Lake from 1906 to 1917, died on August 19 in Los Angeles after a long illness.

Eben E. MacLeod, chairman of the Western Passenger Association, with headquarters at Chicago, died on August 19, at Ephraim, Wis., from a cerebral hemorrhage. He was born on August 30, 1866, at Newport, Hants County, N. S., and entered railway service in 1885, as a clerk in the freight agent's office of the Grand Trunk, at Boston, Mass. In 1889, he was appointed ticket clerk for the Boston & Albany, with the same headquarters, and in the same year was appointed traveling passenger agent of the Chicago, Rock Island & Pacific, with the same headquarters. On August 1, 1892, he was appointed Canadian passenger agent at Montreal, which position he held until July 1, 1895, when he was appointed southeastern passenger agent. In June, 1898, he was appointed assistant general passenger agent, with headquarters at Topeka, Kan., and in December of the same year, he was transferred to Chicago. In June, 1899, he was appointed chairman of the Western Passenger Association, which position he has held until his death.

William E. Wolfenden, general passenger agent of the Pere Marquette, at Detroit, Mich., who died on July 30, was born at Port Hope, Ontario, and was educated at the Collegiate Institute, Whitby, Ont. He came to Michigan and entered railway service as a telegraph operator for the Chicago & West Michigan, first at Woodville and later at Kent City. Subsequently, he was promoted to the agency at New Richmond and later discharged similar duties at Benton Harbor. He then became traveling passenger agent and general baggage agent of the same road. With the consolidation in 1900 of the Chicago & West Michigan, the Detroit, Lansing & Northern and the Flint & Pere Marquette into the Pere Marquette Railroad System, he became district passenger agent at Grand Rapids. Later he was promoted to general western passenger agent at Chicago, which position he held until 1912, when he became general passenger agent at Detroit. This position he was holding at the time of his death.

TRACYFIER.—The Andrews-Bradshaw Company, Pittsburgh, Pa., has issued a 48-page, illustrated catalogue descriptive of the Tracy steam purifier and Tracyfier gas and vapor scrubber. It covers the necessity for cleaning steam and the benefits to be derived from the use of steam that is entirely free from boiler water or dust. The construction of the Tracyfier is clearly shown and its principles of operation outlined. The catalogue includes also a discussion of the effect of boiler water treatment and blow-down on steam quality, and a section descriptive of the application of the Tracyfier gas and vapor scrubber.



O. S. Major



Eben E. MacLeod